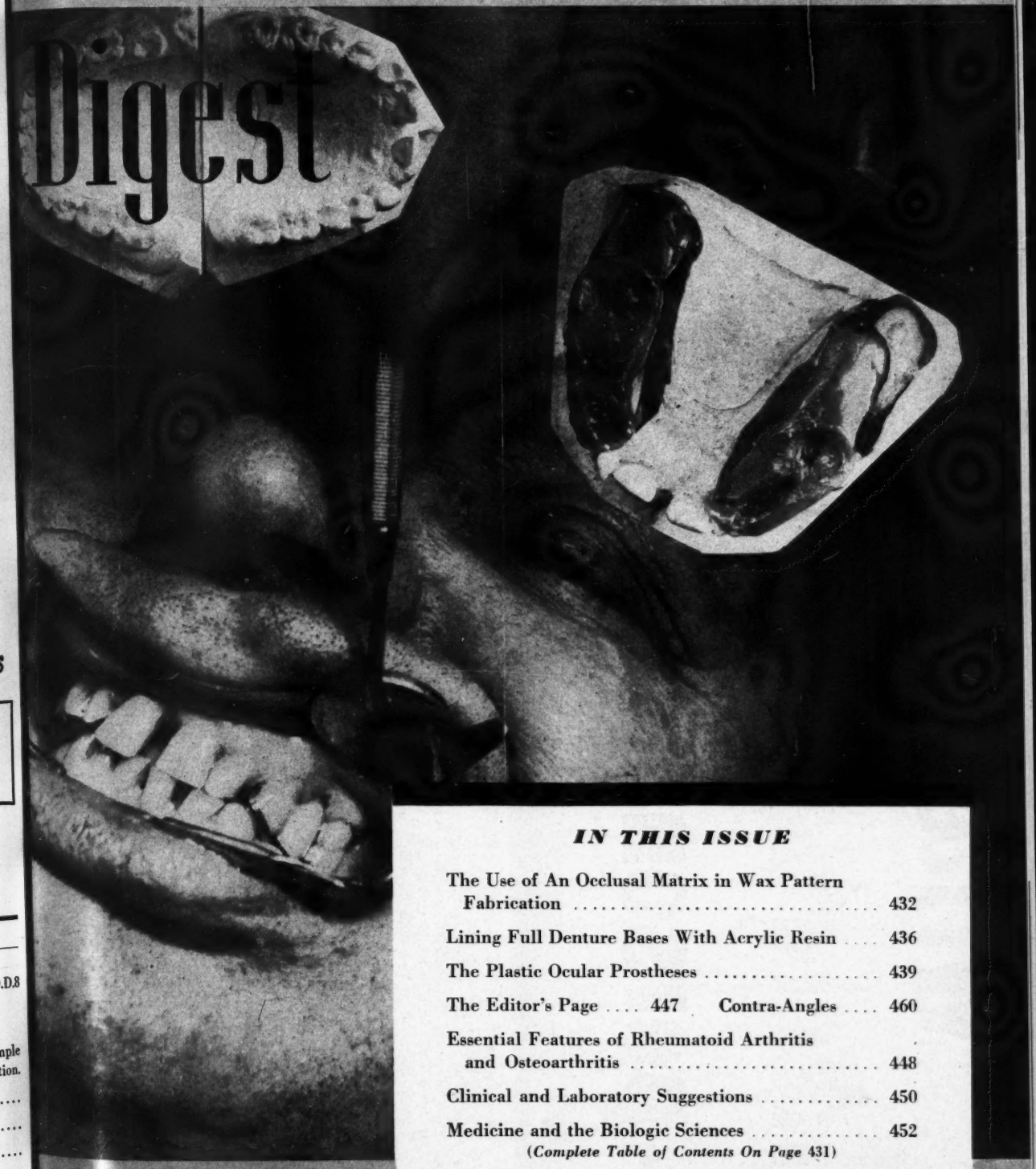
Dental Digest

SEPTEMBER • 1947



IN THIS ISSUE

Vol.

SEPTEM

Roder
en Ur
eral p
wrote
the in
and ha
experi
In the
A Nev
Acryl
discuss
ANCED
presen
es Wr

K. F
Pittsb
muscl
ate de
the fir
one o
tion. A
fabric
Homer
tograp

Vol. 53, No. 9

Dental Digest

SEPTEMBER 1947

About Our CONTRIBUTORS

K. F. Mitchel, D.D.S., (University of Pittsburgh, School of Dentistry, 1928) first wrote for the Digest in July 1942 on muscle-trim and tissue control in immediate dentures. His current presentation is the first of two articles on wax patterns; one on fabrication, the other on reproduction. An occlusal matrix is employed in the fabricating of the pattern. Dorothy and Homer Sterling took and arranged the photographs which illustrate the method.

Roderick M. Morange, D.D.S. (Northwestern University Dental School, 1908), a general practitioner, has a special interest in the improvement of denture construction and has done much clinical and laboratory experimentation in this phase of dentistry. In the August 1942 Digest he introduced A New Permanent Denture Liner for Acrylic Dentures and in August 1943 he discussed the Meyer Method for Balanced Functional Occlusion. His current presentation is Lining Full Denture Bases With Acrylic Resin.

EDWARD J. RYAN, B.S., D.D.S., Editor

MARIAN ZIERATH, B.S., *Assistant Editor*

708 Church Street, Evanston, Illinois

The Use of AN OCCLUSAL MATRIX *in Wax Pattern Fabrication*

K. F. MITCHEL, D.D.S., Pittsburgh

DIGEST

A new feature introduced in this wax pattern method is an occlusal matrix. Its purpose is to ensure the reproduction of the original anatomy of the tooth and to avoid the possible distorting influences of cold flow and internal strains in the wax. This method stabilizes the pattern in the direct method; and in the indirect method, it eliminates articulation of models.

Next month a procedure will be given for reproducing a perfect wax pattern in gold.

A PERFECT inlay is an accurate reproduction of a perfect pattern. This goal is obtainable not with a certain wax or investment, but only through understanding the physical properties and physical changes of all the materials involved in the process and through a definite procedure that will control these factors. There are, of course, certain materials that are more easily controlled in the dental laboratory with average equipment. It is these that will be used, in so far as is possible, in the process to be described. No exception will be taken to any method of cavity preparation, be it slice or box preparation, or to the direct or indirect system of pattern-making, inasmuch as excellent results may be obtained with all of these. The choice of method will be left to the operator in order that he may best suit his special aptitude.

Disadvantages of Usual Wax Pattern Method

The pattern wax is a plastic and as such is not a solid but a liquid of high viscosity. It is subject to cold flow and internal strains. Careless handling may aggravate these two properties to the extent that any change of temperature or minor shock may distort the pattern and make it unusable. This distortion is seldom discernible to the eye but is the greatest cause of failure. Consider the usual method of forming a wax pattern in the light of these disadvantages.

1. A cone of wax is warmed in the flame so that the tip is softer than the base. This wax is forced with heavy pressure down into the banded cavity. The pressure may force the wax into every detail of the cavity; but in the partly softened wax, it sets up internal strains that will dissipate at the first opportunity (Fig. 1).

2. The band is now removed and the wax is carved to form. Keeping the cold flow in mind, realize that when force is exerted on any part of the wax, it will flow through the entire mass and be dissipated at the farthest part of the pattern. Thus, when the occlusal is carved, the instrument force is transmitted to the gingival seat and causes the pattern to spring away at the gingival margin. Vision is seldom good at this area, so the dentist does not discover the error until he places the casting in the cavity. Then he finds that he can catch an explorer under the margin or discovers the discrepancy with a roentgenogram.

3. The pattern is next sprued and drawn out of the cavity. Remember the internal strains and realize that the least torque will release them and distort the pattern. This accounts for the inability many times to reseat the pattern in the cavity to trim a small flash that may be present.

If, by chance, the pattern is perfect,

1. ***Shows a pattern without force applied. Accumulative strain in material.***

2. ***Strain lines aggravated by force.***

4. ***Fitting a rubber eraser between teeth on opposite side to provide clearance for the insertion of saliva ejector, mouth lamp, instruments, and stone for occlusal impression.***

the dentist may encounter a cold draft on his way to the laboratory which will cause a sudden change of temperature in the wax, and distortion. One sometimes wonders that castings produced from such patterns can ever be seated.

Use of Occlusal Matrix

Knowing the hazardous conditions one may encounter—cold flow and internal strain—consider the preventive measure: a procedure that will produce a pattern with a minimum of free instrumentation and yet perfect contour; and one that will minimize internal strain to the greatest possible extent (or to the point where the inertia of the material will hold the pattern form for a reasonable time and under reasonable conditions).

3. ***Shrinking proximal tissues with a 50 per cent zinc chloride solution on a piece of kite string.***

This goal can be achieved by a procedure that will take no more or perhaps less time than the usual method. The following steps are set down for the direct operator and can also be adapted to the indirect method without any difficulty. The restoration of a lower molar is described.

1. To attain maximum visibility during the operation, it is advisable to shrink the proximal tissue with a 50 per cent zinc chloride solution.

5. ***Stone mixed with potassium sulfate solution to the consistency of thin cream is placed on occlusal of lowers. At least one tooth on each side of one to be restored is covered. When stone will pile, it is built up to half the space between uppers and lowers. A screen or gauze is placed on top.***

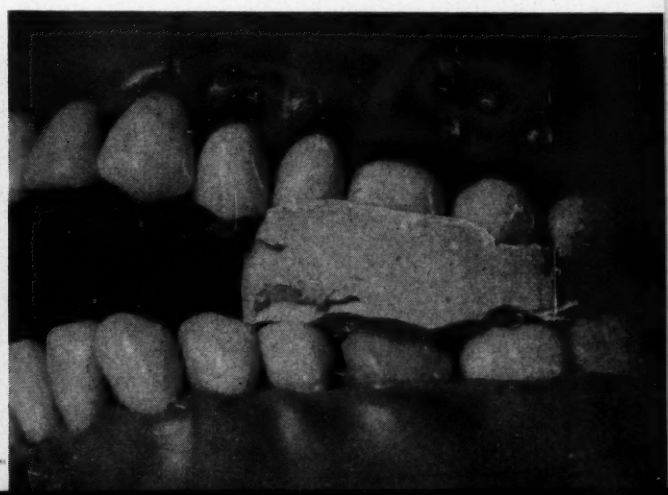
This chemical is placed on a short piece of kite string which is then pulled into the interproximal space (Fig. 3). When the string is removed, the proximal will be quite visible and there will be less danger of gingival bleeding to obscure the field.

In most cases of proximal caries, even those extending to a depth which almost involves the pulp, the occlusal is intact and the marginal ridges are still in place. This contour cannot be improved upon for efficiency in chewing so the goal is to duplicate it exactly.

2. Make a matrix or bite-block of a

6. ***Adding sufficient stone to reach the upper teeth. Patient then closes until the stone has set. Eraser is in place on the opposite side.***

7. ***Trim the impression for operating convenience, being sure to maintain all parts of the tooth anatomy, especially the marginal ridges.***



8. ***Band fitted to tooth (or die) and filled with wax. Gross occlusal excess is removed before removal of band.***

hard die stone such as Die-mac using an accelerator, such as potassium sulfate, to speed up the setting. Reinforce it with wire screen or coarse gauze to reduce possible fracture. (All materials should be assembled before starting so that no time will be lost.) Steps are as follow:

a) Fit a rubber eraser between the teeth on the opposite side so that there is enough clearance to insert a saliva ejector between the teeth (Fig. 4).

b) Lubricate the tooth to be restored, at least one on each side of it, and the opposing teeth.

c) Mix stone with the potassium sulfate solution to a thin cream. Place it on the occlusals of the lowers. When it will pile, build it up to half the space between the uppers and lowers; then place the screen or gauze on top (Fig. 5). Add sufficient stone to reach the upper teeth (Fig. 6). With the eraser in place on the other side, have the patient close and hold his teeth together until the stone has set (Fig. 7). Remove the matrix from the mouth and place in water.

3. Prepare the cavity. If the indirect method is being used, take impressions.

4. Fit the band to the tooth or die and fill it with wax in whatever way you are accustomed to (Fig. 8). Remove gross occlusal excess before the band is removed. Remove the band and trim the pattern of the gross excess of wax. (In this step the dentist need not worry about distortion for he is going to readapt the wax completely and minimize strains.)

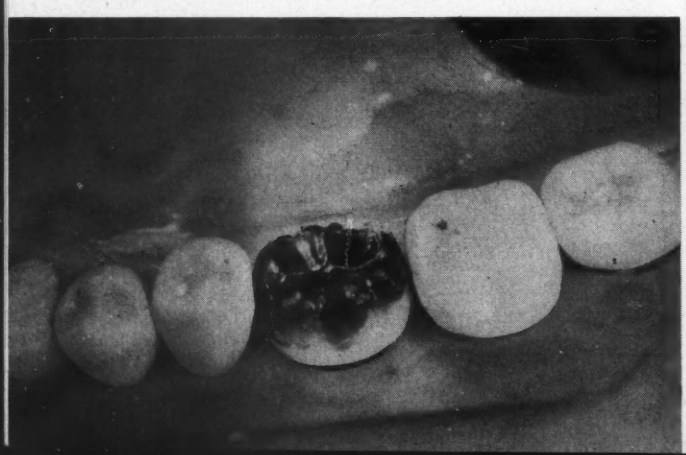
5. Fit a linen strip around the tooth, place the saliva ejector, cover the occlusal with a piece of wet cellophane, and set the occlusal block in position. Have the patient contact lightly. Flow water 5° cooler than the fusing point of the wax, around the tooth until the wax softens (Fig. 9A). While the patient exerts light pressure, draw the linen strip tightly until wax starts to squeeze out from under the block

9A. ***Linen strip fitted around tooth; saliva ejector in place; occlusal covered with wet cellophane, and occlusal block set in position. Patient contacts lightly while water 5° less than the fusing point of the wax is flowed around tooth until wax softens.***

9B. ***Drawing the linen strip tight.***

(Fig. 9B). Have the patient cease the pressure. *At the same instant* release the strip. (The timing here is very important.)

Remove everything from the patient's mouth (Fig. 10) and with an explorer or plastic instrument, remove the wax that has squeezed over



10. ***Block removed after first adaptation. Note how pattern form is developing and wax is closely adapted.***

11. ***Excess wax that has squeezed over tooth surfaces is removed with explorer or plastic instrument.***

12. ***Flash so thin as to be transparent and just enough for a polishing excess will be found when block and strip are removed. The pattern is burnished with moist cotton.***

the tooth surfaces (Fig. 11). Great care is still not necessary. Repeat the procedure, but this time have the patient exert heavier pressure. If possible, work the strip around the tooth. When everything is seated perfectly, flow the warm water over the area for a few moments. This dissipates the internal strains to the maximum. Chill thoroughly before releasing the pressure.

When the block and strip are removed, the flash will be so thin as to be transparent and just enough for a polishing excess. Place the block in position, have the patient contact lightly, and remove the proximal flash. Remove the block and finish the occlusal with a piece of moist cotton (Fig. 12).

6. Sprue with a double sprue on each marginal ridge and remove from

13. ***Pattern removed from cavity by spruing with double sprue on each marginal ridge. (Continuous spray of room temperature water usually advisable during removal.)***

the cavity (Fig. 13). Remove to the laboratory and invest immediately; or, if this is not possible, place the pattern under a jar to prevent temperature changes. The pattern should never remain more than a half hour before investing.

645 *Oliver Building.*

ANNOUNCEMENT—Doctor M. Hillel Feldman Testimonial Dinner

A TESTIMONIAL dinner will be given on Saturday, October 25, at the Plaza Hotel, New York City, in honor of Doctor M. H. Feldman of that city who founded the dental department of the Lincoln Hospital there thirty years ago.

Checks for the subscription price, $10, should be made payable to Doctor Harvey A. Stone, Treasurer, and mailed to: 161 West 54th Street, New York 19.

ANNOUNCEMENT OF BOOKS RECEIVED

ORAL SURGERY, By Sterling V. Mead, B.S., M.S., D.D.S., Third Edition, St. Louis, The C. V. Mosby Company, 1947, Price $15.00.

PRACTICAL PEDODONTIA or JUVENILE OPERATIVE DENTISTRY AND PUBLIC HEALTH DENTISTRY, By F. E. Hogeboom, D.D.S., Fifth Edition, St. Louis, The C. V. Mosby Company, 1946, Price $8.50.

TEMPOROMANDIBULAR ARTHROGRAPHY, By Flemming Norgaard, Copenhagen, Einar Munksgaard, 1947, Price $6.50.

GOTERAS: APARATOS PARA EL TRATAMIENTO DE LAS FRACTURAS DE LOS MAXILARES, By Natalio Pavese, C.D., Buenos Aires, Editorial El Ateneo, 1946.

OPERATIVE ORAL SURGERY, By Leo Winter, D.D.S., M.D., LL.D., Sc. D. (Hon.) Third Edition, St. Louis, The C. V. Mosby Company, 1947, Price $15.00.

BONE AND BONES: FUNDAMENTALS OF BONE BIOLOGY, By Joseph P. Weinmann, M.D. and Harry Sicher, M.D., St. Louis, The C. V. Mosby Company, 1947.

RESTORATIVE DENTISTRY, By J. M. Schweitzer, D.D.S., St. Louis, The C. V. Mosby Company, 1947, Price $15.00.

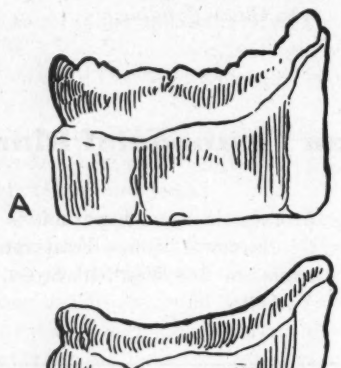
LINING FULL DENTURE BASES

with Acrylic Resin

R. M. MORANGE, D.D.S., Chicago

DIGEST

In the technique described full dentures are relined and duplicate the condition present in the mouth when the impressions are made. In the method the vertical dimension and centric relation are maintained.



1a. ***One week following extraction showing irregularity of alveolar arch.***

1b. ***Two months later. Bone resorption has taken place.***

THE NECESSITY for relining dentures arises from an extreme resorption of the cancellous part of the ridge bones (Fig. 1). The essential goals in making impressions for dentures are:

1. To restore the original centric relation and the vertical dimension.
2. To restore uniform adhesion throughout the bases.
3. To restore functional balance of both the occlusal and cuspal planes during lateral excursions.
4. To restore the original esthetic arrangement of the anterior teeth.
5. To preserve the underlying ridges.

Preparation of Lower Base for Lining

It is best to make the lower impression first.

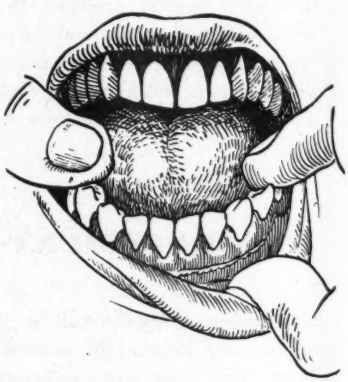
Grinding—1. Do not touch any portion of the denture that makes contact with the alveolar ridge crest (Fig. 2).

2. Do not shorten the denture borders.

3. Grind all other areas, flanges, undercuts and thick material on the lathe so they flare outward from the ridge crest to the periphery. This procedure results in an oversize tray.

2. ***Flanges, undercuts and thick areas are ground on lathe to flare outward. Care is taken NOT to touch any of the ridge crests.***

Lower Impression—Use a semi-mucostatic, pressure-equalizing paste (such as Coe-Trans). Add a trace of vaseline to increase plasticity and working time.



3. ***Lower dentures being seated and vibrated into place. Excess Coe-trans is forced out around margins by mouth closure.***

1. Vaseline the lips.
2. Fill the base with Coe-Trans. Seat it distally over the pads (Fig. 3) and vibrate to place. Then have the patient bite in centric occlusion with maximum force.
3. Use a closed bite technique. Have the patient force his tongue upward against the palate with considerable pressure as the opposing teeth are held firmly together in centric occlusion. In this manner the entire lingual border is contoured at once.
4. Raise the lip and lift and mark the labial frenum.

5. Lift the cheeks and press around the buccal borders.

(The patient can now use intermittent pressure to bear on the base at closure in centric.)

When the impression is hard, remove the case and examine it for defects. Trim the excess impression material with a hot knife and return the impression to the mouth.

Preparation of Upper Base for Lining

The problem here is vastly different from that in the lower preparation. The palate area under a denture does not change, but the ridge bone undergoes a marked resorption.

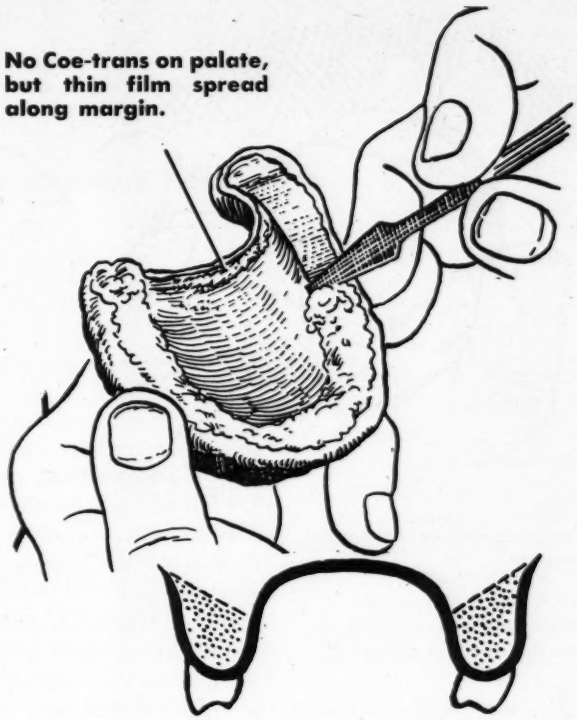
Grinding—The entire ridge crest from tuberosity to tuberosity is burred and stoned to a depth of nearly 2 millimeters (Fig. 4). The side walls are beveled and all undercuts

4. *Preparation of upper base shows area to be burred out.*

removed. (This trimming facilitates the free outward escape of the Coe-Trans and at the same time reduces the possibility of increasing bite opening to a minimum.)

Upper Impression—The patient makes this impression with his stabilized lower in centric occlusion and with his own muscular effort. Thus correct balance of the functional plane with uniform adhesion of the bases is established.

1. The Coe-Trans is spread along the distal border of the palate. The side walls are filled by beveling them outward (Fig. 5). None is applied to the palate. The denture is seated from behind the tuberosities *first* (Fig. 6) (not on the incisal ridge, which is a grave error). It is then carried upward, guided by the incisal ridge, and into the labial undercut. The patient closes slowly while the denture is being seated in centric and applies firm pressure at full closure.



2. The frenum is now molded and the cheeks are rubbed over the borders.

3. The mouth is opened and the mandible moved laterally a few times to trim the border against the pterygomandibular ligament, an important step in all upper impressions.

6. *Carry the denture to place: first over the tuberosities.*

5. *Coe-trans spread along distal border and side walls, filled by beveling outward.*

4. The patient is instructed to perform mastication intermittently with his natural muscular power for two or three minutes.

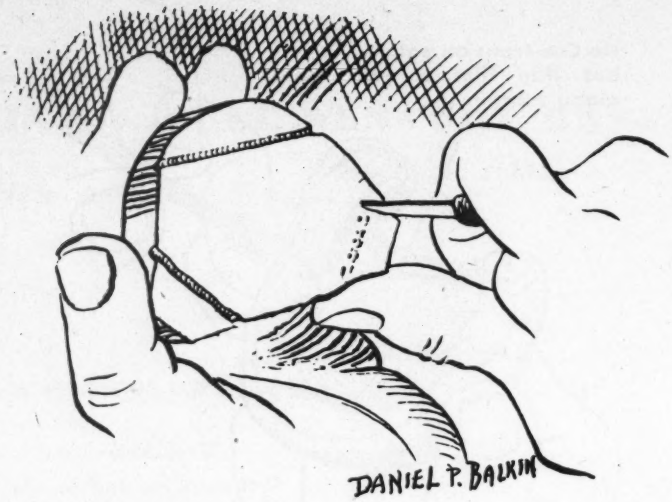
5. A compound index of the buccal walls on both sides is made at centric closure as a guide to set up the cases on the instrument.

Laboratory Procedure

Preparing Impressions—1. A section of pink wax is fitted around and above the lingual border of the lower impression and sealed in place.

2. The distal border of the upper impression is trimmed of surplus Coe-Trans with a hot knife, and postdam carding wax is painted along this border to accord with the varying degrees of motion of the palatal muscle during speech.

Casts—These should be made uniform, grooved on the back, and paint-



7. Grooving back of model for accurate replacement.

ed with petroleum jelly for easy removal from the mounting arm (Fig. 7).

Setup—This must be mounted on an instrument having a rigid stop in front, the crescent or Hanau type.

1. The lower cast is first mounted on the arm at the floor level of the teeth; the upper is then placed in position.

2. The compound indices are waxed in place.

3. The instrument stop is set. (The screw is turned with pliers for safety and the upper arm sealed with plaster.)

Flasking—Only one denture at a time is flasked.

1. Remove the upper, repaint the model, and flask.

2. When ready to separate, heat the flask in water at 150° Fahrenheit for 5 minutes for easy separating. (The Coe-Trans will then come off readily but is difficult to remove if overheated.)

3. The palate is ground thin on the lathe or removed as desired.

4. The acrylic used to line the denture must be of the same make as the original material; either clear or pink will do. One-half hour at 140° Fahrenheit and one-half hour at 212° Fahrenheit are sufficient time and temperature for curing.

Preparation for Packing—1. Remove at least 2 millimeters from the untouched surfaces; that is, from the upper palate and from the lower ridge crest. The remaining areas require little if any excavating.

2. The clean surface is painted with the monomer. (The resin mixture should be thinner than usual and doughy.)

3. When packed, the case should be held in the clamp a fraction from closure for at least 15 minutes; then fully closed and cured.

Flask Removal, Reset and Grinding—1. The case is removed from the flask intact, if possible, and reset on the instrument. (The grooved back of the model will seat as before and broken ridges of the model be no handicap.)

2. The displaced back teeth are stoned down until the stop is fully closed (Fig. 8). (A sheet of thin typewriter carbon paper is used and each mark carefully stoned until closure is brought about. Do not be tempted to grind any other teeth than those marked.)

3. The lower is then removed from the instrument, flasked, cleaned, ground, and processed (as was the upper); returned to the instrument and the displaced teeth ground to a fully closed stop.

Comment

The completed cases will conform to all the requirements the operator set out to fulfill and few, if any, adjustments will be necessary later.

29 *East Madison Street.*

We Can't Pay You, But—

NO DENTAL author can ever be *paid* for a valuable technical or scientific article. The value of such material is above a monetary basis. In the preparation of a technical article, however, an author often expends money for drawings, photographs, models, or graphs. We should like to help defray some of these expenses.

Until further notice, DENTAL DIGEST *will allow* $25.00 *toward the cost of the illustrations provided by the author of every article accepted.*

If you have a constructive idea, an innovation, a new result of tried and proved experiment, put it down in writing, illustrate it, and send the material to: DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

We hope that you will accept this invitation!

The PLASTIC OCULAR PROSTHESIS*

JOHN V. NIIRANEN, Commander (DC) USN, Bethesda, Maryland

DIGEST

At the outbreak of World War II, stock glass eyes and the materials for making them were in short supply. For this reason, and because of the inherent shortcomings of stock glass restorations, the Navy began its search for a more satisfactory prosthesis, one that incorporated the qualities of performance, comfort, and esthetics. It was learned early that an acrylic eye, properly made, was almost indestructible; that comfort was achieved only through individualized fitting; and that by far the most important unsolved esthetic problem was mobility of the prosthesis.

The technique of plastic ocular restoration taught at the U. S. Naval Dental School is the refined product of continuous laboratory and clinical research in materials, equipment, and procedures. This technique will be described from the standpoint of Navy and Marine casualties, whose problems differ qualitatively from those of civilians: Service personnel are available for treatment and fitting at all times; they are in close contact with patients who have like disfigurements; injury to the orbital area is often much more extensive and the restorative problem consequently more difficult.

The surgery which precedes the ocular prosthesis and the resulting characteristics of the ocular stump are important to the success of the restoration. The necessity for cooperation between the ophthalmologist and the dental surgeon is therefore immediately apparent. Experience at the Dental School has indicated that it is best for the average case to be referred by the ophthalmologist for the restoration four weeks after surgery.

Technique

The basic steps of the technique are:

1. Preparation of patient: Positioning, physical and mental comfort, examination of socket.
2. Taking alginate impression of the prepared eye socket.
3. Preparation of stone working mold from alginate impression.
4. Pouring wax in mold to form basic pattern for restoration.
5. Modification of anterior portion of wax pattern and trying *in situ* to simulate remaining eyeball and to restore contour of tissues immediate to the orbital cavity.
6. Duplicating corrected wax pattern in pigmented methyl methacrylate by injection molding.
7. Orientation of iris with prosthesis *in situ*.
8. Preparation of master stone mold.
9. Painting an individualized iris on paper disk with water-color pigments.
10. Preparation of anterior scleral portion of prosthesis: Insertion of iris, painting of scleral colors and blood vessels on restoration.
11. Addition, by injection molding, of clear methyl methacrylate over prepared and painted scleral portion.
12. Polishing of the completed plastic ocular restoration.

1

*Reprinted from *United States Naval Medical Bulletin* 47:5-22 (January-February) 1947.

2

Patient's First Appointment

The patient brings his written medical history with him at the time of his first appointment. He is seated in the dental chair. Before examination the operator looks briefly through the medical record. (Detailed study can usually wait until after the patient has left.) The surgically prepared eye socket is examined for movement of the stump, degree of healing, possible need for further surgery, and the general characteristics of the orbital cavity. The operator also makes his own estimate of the patient for other possible physiologic and psychologic problems presented.

At this first visit, three photographs of the patient's orbital regions are taken: A full-face photograph and a profile photograph (to serve as a prerestoration record); a life-size picture which includes a millimeter rule held at the temple near the remaining eye at the plane of the iris, for measuring the diameter of the iris (Fig. 1).

The patient is shown pre- and post-restoration photographs of other patients like himself; it is explained to him that there will be no pain or discomfort, and he is encouraged to talk with fellow patients on the merits of the plastic ocular prostheses which they are wearing. Thus prepared, the patient will usually return, on his second visit, ready to cooperate fully.

The patient is dismissed from this first visit, and the operator makes a more careful study of the written medical history for possible additional light on the observations made in examining the socket.

The Impression

At the second visit, the operator begins the series of exacting procedures, some of which will require the full and intelligent cooperation of the patient. The orbital cavity is again examined, this time to plan the taking of a complete and accurate mucostatic impression.

Equipment and Materials — The equipment required includes:

1. Such standard laboratory items as an interval-timer, plaster-bowl and spatula, and a 100 cubic centimeter graduate.

2. Two special pieces — a syringe and a confining tray (Fig. 2).

a) The glass syringe (90 cubic centimeters) terminates in an ordinary nursing nipple with the end severed and can be made by a glass blower at small cost.

b) Two confining trays (one should be made for a left and one for a right eye) are made by conforming two thicknesses of baseplate wax to an average orbital area. A handle is added, and the wax is duplicated in clear methyl methacrylate.

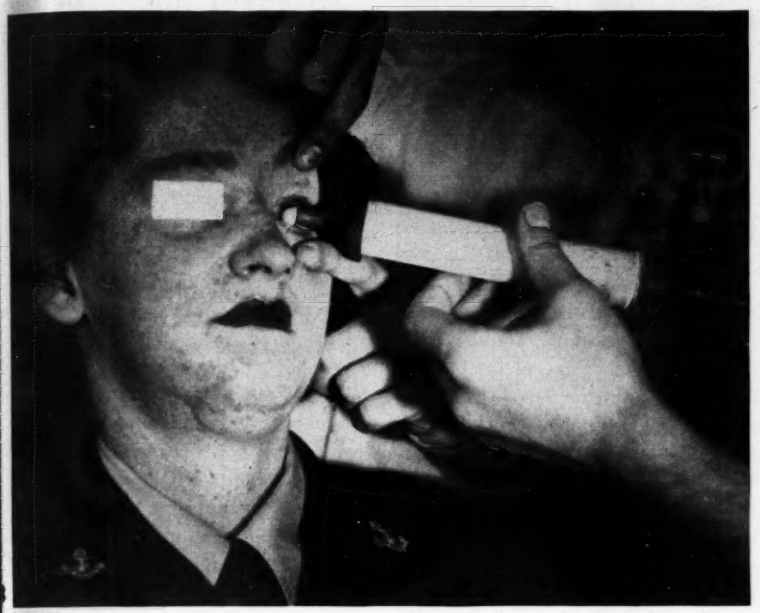
Preparing Patient — 1. While the patient is still standing about, the operator observes (without the patient's being aware of it) the midline or "normal" position of the remaining eye; essentially this is determined by the usual position of the patient's head as he looks straight ahead.

2. The patient is then seated in a dental chair in an upright position facing an area devoid of bright lights or reflections.

3. A small piece of tape is placed on the wall in front of him so that when his remaining eye is fixed on this prescribed point, it is in midline position. He is told he will shortly be expected to keep his gaze fixed on the point for 6 minutes — the time necessary to taking the impression; that the purpose will be to prevent distortion of the impression material by movement of the ocular stump during the impression-taking; that he should blink as few times as possible during this step, and that there will be no pain or discomfort — the alginate will merely feel cool to the mucous membrane of the socket.

4. Anesthesia is not used, except for uncooperative young children.

5. The eye socket and surrounding tissues are not lubricated, because the alginate will not adhere to the tissues or cilia, and lubrication would reduce the accuracy of the impression.



Mixing the Alginate — A tube of alginate[1] is added to the correct amount of water to produce a smooth creamy mix of a consistency considerably softer than that required for dental impressions, and the entire mix transferred into the syringe.

Taking Impression — Any excess lachrymal secretion in the ocular cavity is removed gently with sterile gauze. (From this point on until the alginate is set, the operator obviously must not obstruct the patient's view of the designated spot.)

1. While the patient's palpebrae are held apart by an assistant, the operator injects (Fig. 3) the soft alginate with minimum pressure, slowly "flowing" the impression material into any undercuts that may be present, without entrapping any air bubbles, until the cavity is full.

2. The remainder of the material in the syringe is flowed over the external surfaces immediate to the orbital cavity and the whole mass is confined with the clear plastic tray, with minimum pressure, for 4 minutes.

3. The operator stands behind the patient and holds the tray lightly in place, with his hand resting on the patient's face, steadying both the patient's head and the tray. This helps the patient to keep his gaze fixed on the designated spot; he will not move his head or eye, as is the tendency when the operator leaves him and moves about the room.

4. The impression is removed by gently drawing it outward and toward the nose, at the same time manipulating the surrounding area to free the tissues.

5. The impression is carefully checked by comparing it with the socket (Fig. 4) for voids, which may have resulted from entrapped air, and for distortion or other inaccuracies caused by muscle movement or by improper consistency of the impression material.

Hardening the Impression — The impression is rinsed with tap water to remove any secretions that may have adhered to its surface. The impression is then immersed in a hardening solution and after it has surface-hardened, it is rinsed lightly, and excess moisture is removed.

The Working Mold

Pouring Mold — 1. Any excess alginate impression material extending over the edge of the confining tray is trimmed off.

2. The tray and impression are boxed with wax.

4

[1]For several of the steps outlined in this report, only one particular brand of material in each case has been found to give most satisfactory results. This observation applies to: the alginate impression material; the methyl methacrylate; the pigments in the undercut surfaces in the iris countersink; the iris; the blood vessels, and the scleral tints.

5

3. The outside of the mold base is lubricated with heavy petrolatum.

4. A plaster key is formed around the base to hold the assembled parts of the mold in proper relationship after it has been divided into two (sometimes more) sections.

Dividing Working Model — After the plaster key has set, the stone working mold is removed and sawed and broken into two sections through a plane bisecting the eye socket vertically. (The sawcut should extend through the mold except for the last 5 millimeters of the base. This weakens the mold so that it can be gently broken in two by hand with little effort, but still leaves a positive contact between the pieces which allows the mold to be re-assembled in the key with its original dimensions.) The two pieces are then washed in running tap water with a brush to remove any remaining particles of stone or alginate impression material.

Reassembling Mold—1. The two sections of the mold are dried.

2. They are lubricated thoroughly with liquid petrolatum, which will serve as a separating medium. Excess lubricant is removed.

3. The sections are repositioned accurately in the plaster key.

4. Wax wedges are inserted at the edges of the sawed slit to ensure that the sections remain in place and to prevent molten wax from flowing out of the mold.

The Wax Pattern

Pouring — Pink baseplate wax is heated and flowed slowly into the lubricated mold, which is "rotated" and tilted at the same time to ensure accurate adaptation. The mold is filled with a slight excess.

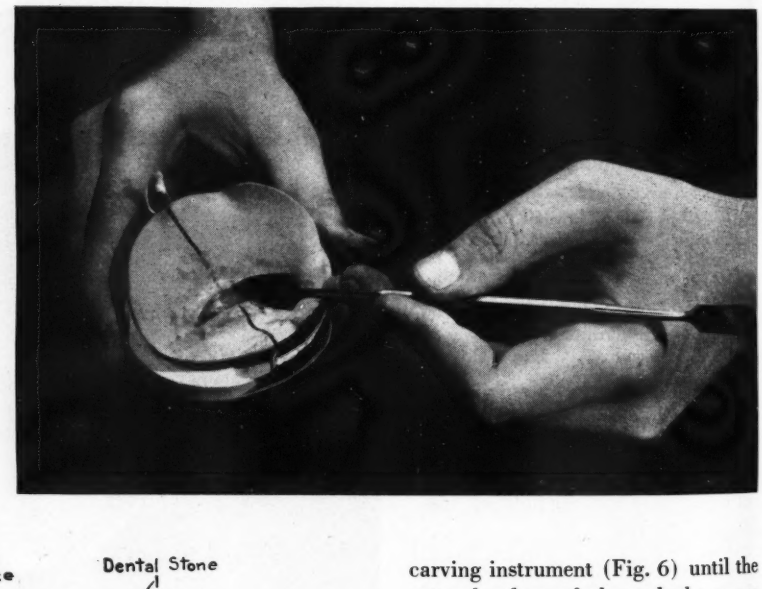
Removing Excess Wax — The mold and wax are chilled for a few minutes under cold running tap water. The excess wax is removed with a *dull* carving instrument (Fig. 6) until the outer borders of the palpebrae are free of it. (A slip with a *sharp* carving instrument could scratch the stone mold and allow sharp particles to become imbedded in the wax pattern.) The wax between the stone palpebrae is contoured to approximate the convexity of a normal eye (Fig. 7).

Removing and Trimming Wax Pattern — 1. The wax and mold are now completely chilled, preferably in ice water or in a refrigerator.

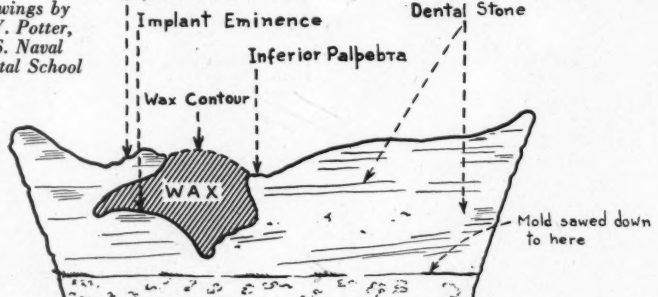
3. Stone is mixed according to the manufacturer's specifications and poured and vibrated onto the boxed impression (Fig. 5) until all parts are covered with at least 10 millimeters of stone.

Plaster Matrix or Key — 1. After the stone has hardened, the tray, boxing wax, and alginate impression are removed from the mold.

2. The mold is trimmed and beveled on a model trimmer. (Four notches at the edge of the base will facilitate assembly of the mold later in a key.)



Drawings by U. Y. Potter, U. S. Naval Dental School

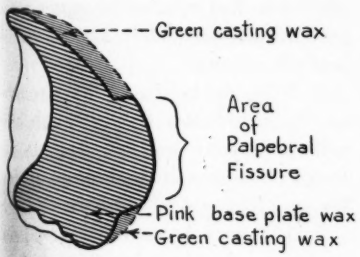


VERTICAL CROSS SECTION OF WAX PATTERN IN STONE MOLD

7

2. To remove the pattern from the mold, the plaster key is removed, sharp instruments inserted at each side, between the two portions of the stone mold, and even stress applied to separate the mold from the pattern. (If undercuts are present which offer resistance to separation and consequently threaten distortion of the wax pattern, it may be necessary to make one [or two] new lines of cleavage. The new line of cleavage is started with a saw, cutting from the side toward the wax pattern, and the break is completed by tapping the mold lightly with a blunt instrument.)

3. The "flash" — excess wax which filled the slit produced by the sawing



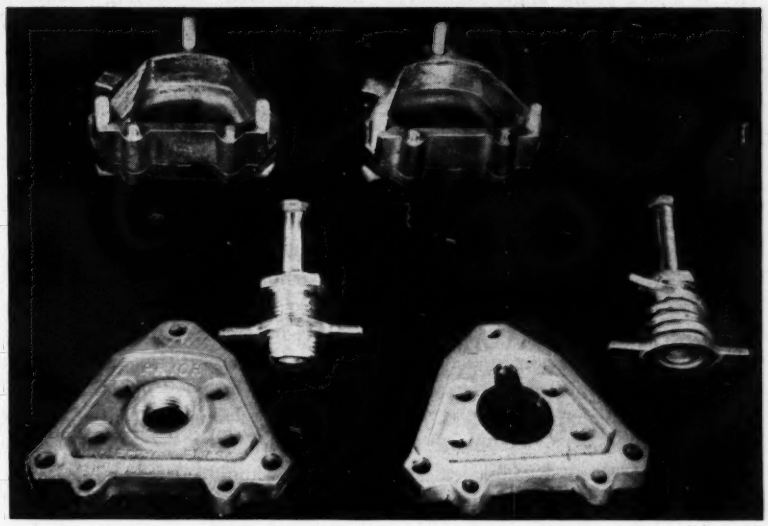
Vertical Cross Section of Wax Pattern

8

— is trimmed from the wax pattern. The pattern is compared with the stone working mold, for possible distortion or voids.

Contouring and Trimming Pattern — On the anterior surface of the wax pattern the area of the palpebral fissure will be represented by a slightly raised portion. Green wax is added to eliminate the "shoulder" (Fig. 8) and to make this surface correspond to the contours of the remaining eye. (The use of contrasting colors in the two waxes is of considerable help later in making the necessary additions and subtractions for contouring a comfortable and accurate wax pattern.)

At the patient's third visit, the wax pattern is lubricated with liquid petrolatum to facilitate insertion and removal, and inserted gently into the eye socket — first under the superior, then the inferior, palpebra. The pattern is removed, trimmed, washed and lubricated, and reinserted as many times as necessary for contouring. Medically, the pattern should be trimmed to touch but not overlap the caruncula; laterally, it should extend as far as the original impression.



9

The wax pattern *in situ* is compared with the remaining eye, viewed from all angles. The contours of the two "eyes," and of the palpebrae and surrounding tissues, should correspond closely. As a rule it will be found necessary to remove excess bulk from the anterior temporal half of the pattern.

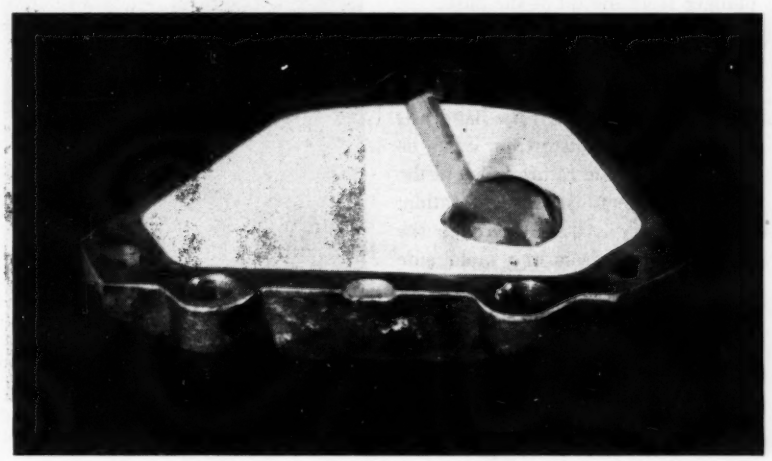
The Flask — A Pryor-type injector flask is modified as follows: A snug-fitting coil of copper tubing is soldered around the injector plunger barrel, to act as a water jacket for this cylinder. The hole in the flask lid is enlarged about 15 millimeters and an additional smaller half-circle removed at the periphery of the hole (Fig. 9) to permit embedding the cylinder and coils in the stone with no metal-to-metal contact.

Investing Wax Pattern — 1. Dental stone is mixed and vibrated into the bottom section of the flask.

2. The wax pattern is held in the operator's fingers, posterior side up, and enough stone is flowed and vibrated over the surface to cover it with a layer approximately 3 millimeters thick.

3. The pattern is set in the stone flush with its periphery, and the stone allowed to set at least fifteen minutes.

4. A wax sprue $\frac{3}{16}$ inch in diam-



10

eter is added at the angle necessary to bring its top near the center of the flask (Fig. 10). (Two or three wax patterns, with the tops of their sprues joining, can be processed in the flask simultaneously.)

5. The surface of the stone in the bottom section of the flask is painted with a 15 to 20 per cent solution of sodium silicate and allowed to dry thoroughly. It is then immersed in tap water a few seconds and the excess water removed.

6. The middle section of the flask is set upon the lower section, with clean metal-to-metal contact of the adjoining surfaces.

7. Stone is mixed and vibrated into the upper half until the level is one-half inch below the top level of this section. (The end of the sprue must be in evidence; if it extends above the level of the stone, it is trimmed off flush after the stone has set.)

8. A third mix of stone is vibrated in excess amount over the set stone of the upper half of the flask.

9. The modified lid and cylinder are assembled, with the cylinder through the hole in the lid, and the wings then screwed onto the bottom of the cylinder, underneath the lid. With the plunger inserted and held down the full depth of the cylinder, the assembly is settled down onto the stone-filled flask, so that the plunger is in contact with the exposed end of the wax sprue. With the lid accurately seated, the cylinder is vibrated gently by hand to ensure that the wings rest on the top of the set stone, and that the unset stone completely insulates the cylinder, wings, and plunger from the lid of the flask.

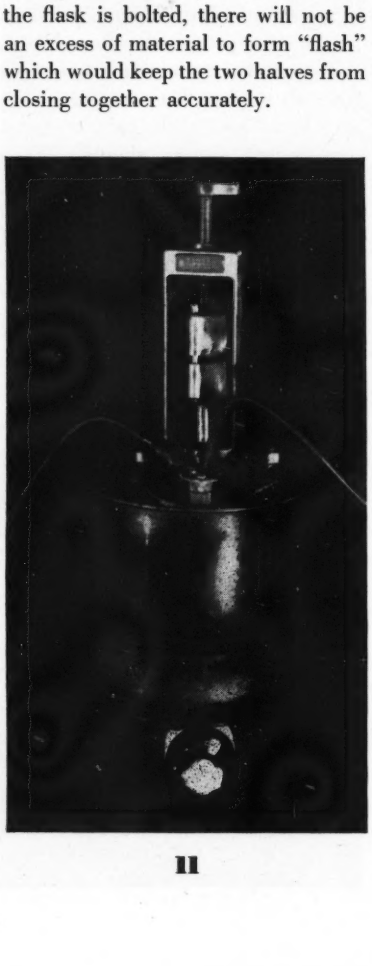
Separating the Flask — The two "halves" of the flask are separated and the wax pattern and sprue removed mechanically. If the pattern is removed without distortion, it can be saved for possible future reuse in the event the patient loses his restoration. Hot tap water is flowed through the sprue channel, from the mold side out, to remove all traces of wax or stone particles from the mold, sprue channel, and cylinder.

The Prosthesis

Packing Flask — Pure tinfoil is the preferred separating medium. Rubberdam (thin) may be used as the separating medium on the lower half, and sodium silicate (15 to 20 per cent solution) for the upper; or sodium silicate may be used for both halves of the mold.

1. Fluorescent methyl methacrylate, pigmented to a basic scleral color by the manufacturer, is used as the scleral portion of the prosthesis. (The mixture of monomer and polymer, prepared according to the manufacturer's instructions, is ready to pack when it no longer will adhere to a clear steel instrument. Contaminating the mixture is to be avoided at all stages. It should not be handled with the fingers but with a clean steel mixing spatula and cellophane that has been immersed in water, then thoroughly wiped on a clean dry cloth to remove excess surface moisture.)

2. In packing the upper half of the flask, the mixture is forced into the full length of the stone sprue channel. The two halves of the mold are *underpacked*, however, so that when the flask is bolted, there will not be an excess of material to form "flash" which would keep the two halves from closing together accurately.



11

3. The flask is bolted together, the cylinder filled to within 5/8 inch of the top, and the plunger inserted. The spring pressure jack is applied and turned down to exert the required pressure on the plunger as indicated on the guide posts.

A better product will result if, at this point, the packed flask with the acrylic thus compressed, is allowed to stand for at least 1 hour; overnight is permissible.

"Curing" the Acrylic — 1. The flask is set in a room-temperature water bath, with the water level one inch below the top of the flask lid.

2. Rubber tubes are attached to the copper cooling jacket, and cold tap water is started flowing through the coils (Fig. 11).

3. The water bath is thermostatically controlled to raise the water temperature approximately 1.8° Fahrenheit per minute.

4. When the boiling point is reached, the cold water flow through the coils is stopped, and the flask is allowed to remain in the boiling water for an additional 30 minutes.

5. The flask is next immersed in cold water for 15 minutes and then dismantled.

On separation of the two halves, the plastic prosthesis will be found held in the upper half by the continuous sprue; it will be necessary to remove the lid and cylinder, and to break the stone mold, to remove the prosthesis.

Trimming and Polishing — The sprue, "flash" if present, and any protruding defects are trimmed off with mounted stones; care must be taken to avoid altering the original contours. In polishing the restoration a soft rag wheel is used, with wet flour pumice under light pressure, and with the engine at slow speed to avoid "burning" the surface of the acrylic. The irregular posterior surface is similarly polished but with felt cones and fine bristle brushes. A high surface polish is then imparted with dry rag wheels, cones and brushes, and wet whiting. The high polish will make it unnecessary to lubricate the acrylic eye or the eye socket at any subsequent stage.

Period of Accommodation and Fitting

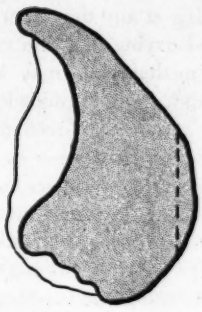
It will now be necessary for the patient to wear this uncompleted whitish prosthesis, under a loose patch covering the orbital region, for from seven to ten days. (Two to three days will suffice if he habitually wears a prosthesis of any type.) During the entire seven- to ten-day period, the patient will report at least every forty-eight (preferably every twenty-four) hours. The operator will inspect the socket at each visit and will usually find it necessary to modify (as a rule, reduce) the anterior surface of the prosthesis to accomodate the returning tissue and muscle tone of the socket and surrounding tissues.

The Iris—Position and Size

After changes in the ocular cavity and surrounding tissues cease, and the final adjustments for contour, comfort, and mobility have been made, the prosthesis is ready for the addition of the iris, scleral colors, blood vessels, and clear portion (cornea).

Locating Iris — The operator determines the iris position, using the remaining eye as a guide. With the prosthesis *in situ*, the pupil position and the distance of the iris from the medial and lateral canthi and from the edge of the inferior palpebra, are marked on the prosthesis by small waterproof dots. The restoration is removed, and a circle representing the iris is drawn in the same color as the dots with a compass. The dots are used in *locating* the iris, rather than as a guide to size.

Size of Iris — Iris diameters vary from 10.5 to 12 millimeters. Size of the iris is determined by measuring the life-size photograph of the patient's orbital area. As an alternate method, the patient's remaining iris can be compared with sample irises graduated in size and cemented to the edge of a strip of white paper. Holding a flexible rule near the remaining iris is not sufficiently accurate at this stage, and the use of micrometers, calipers, and so forth, near the remaining eye is discouraged because of their sharp points and edges.



12a

One-half millimeter should be deducted from the measured or estimated diameter to allow for later magnification by a clear acrylic cornea. (With experience the operator will learn to estimate iris size without using photographs, stock irises, or other aids.)

The restoration is reinserted in the patient's eye socket, and the location and size of the iris circle checked for accuracy and changed if necessary.

The Master Mold

Reinvesting the Prosthesis — In subsequent steps temporary changes will be made in the contour of the anterior portion of the prosthesis. A master mold is prepared at this stage, therefore, to preserve a record of the now-correct proportions. This is done by investing the prosthesis in the modified Pryor-type injection flask as before.

Modifying Master Mold — After the prosthesis is removed from the flask, the circle representing the iris will be found printed on the mold in the upper section of the flask. The concavity of the stone inside this circle is accentuated by carving with a spoon-shaped scraper, to allow for an increase in bulk of the clear portion which will be added over the iris later. The purpose of the added bulk is to allow for later polishing and to permit final minor modifications if necessary in the anterior contours of the finished restoration.

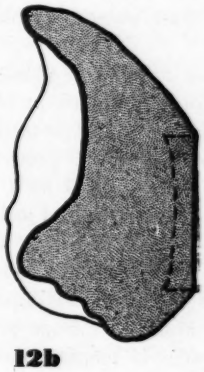
The Iris Countersink

The convex surface circumscribed on the prosthesis by the circle to indicate iris size and position is cut down flat (Fig. 12a) with a mounted stone; care is taken to leave at least a trace of the circle intact. This flat area is then countersunk with an inverted cone mounted stone to a depth of only one millimeter so that correction in location and size can be made if necessary. The countersink diameter should be exactly the size previously determined for the iris.

The countersink is now filled with pink baseplate wax, which is shaped to restore the contour present before flattening and countersinking. At the patient's next visit the prosthesis is inserted for rechecking the orientation and size of the iris. Any modification of the countersink should be made at this time.

After the iris location is thus finally established, the prosthesis is taken out and all traces of wax are removed. Then, with the prosthesis again *in situ* and the patient's remaining eye in midline position, the planes of the irises of both "eyes" are observed, from eye level at the side, and from below, for the purpose of determining what modifications in the countersink must be made to duplicate the "tilt" of the remaining iris. The prosthesis is removed. The countersink is deepened, and cut to the corrected iris floor plane, to a depth of two millimeters (Fig. 12b) at the shallowest point of its periphery. The floor is left slightly convex; undercutting the countersink is avoided at this stage.

The remaining area of the anterior surface, between the countersink and the periphery of the prosthesis, is then reduced with a mounted stone approximately one millimeter, preserving, at the same time, as nearly as possible a hemispherical surface (Fig.



12b

12c). (This will be more difficult in prostheses with irises which have an unusual degree of "tilt.") The anterior surface of the prosthesis is left unpolished, for later addition of pigments.

12c

Undercutting Countersink—In the natural eye, the outer rim of the iris is a diffused rather than a sharp outline. To simulate this, the countersink, which is now one millimeter in depth at its periphery, is undercut at an angle of approximately 30 degrees (Fig. 12d) and the undercut surfaces painted with grade blue-purple permanent water-color pigments.

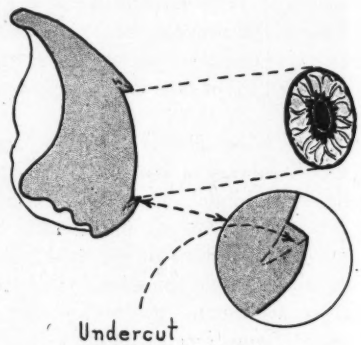
The Iris—Painting and Fixing Pigments

Painting Iris — Duplicating the colors of the iris is difficult for anyone who is not a trained artist. With the patient's remaining eye as a model, the iris is painted onto a disk of high-grade water color paper of the proper size. (The irises are cut with steel punches, sizes from 10.5 to 12 millimeters at 0.5 millimeter intervals.) Select grade permanent water-color pigments are used for the colored portion of the iris; the pupil is drawn with waterproof black india ink.

Fixing Iris — The painted iris is dried for three hours at 60° Centigrade in a dry heat oven. It is then removed and given a protective coating by being dipped in a saturated solution of clear methyl methacrylate polymer in benzene. It is allowed to dry at room temperature for fifteen minutes or longer and again put in the dry heat oven for one hour at 60° Centigrade. If the iris should need retouching at any time after this dipping and drying, the thin coating of methyl methacrylate may be peeled off or the pigments added onto the coating and the iris recoated as before.

Adding Scleral Colors and Blood Vessels — At the same time the patient's remaining eye is serving as a model for painting the iris, the scleral colors and blood vessels are painted onto the unpolished anterior surface of the prosthesis with permanent water colors prepared with a 1 per cent aqueous solution of pure dioctyl sodium sulfosuccinate as a carrying medium. The unfinished prosthesis is oven-dried for one hour.

Adding Iris and Protective Cement — The iris and prosthesis are removed from the oven and allowed to cool. The iris is firmly seated and cemented into the prepared countersink with an iris cement. The entire anterior pigmented surface, including the iris, is then coated with two layers of the iris cement. A first coat is applied and allowed to dry at room temperature for fifteen minutes or longer; the second coat is then applied, and the prosthesis is again dried in the oven at 60° Centigrade for one hour.



12d

Adding Clear Methyl Methacrylate

To complete the prosthesis the master mold is now tinfoiled, and the prosthesis is reinserted in the bottom section of the mold. Enough clear methyl methacrylate is mixed and packed in the upper half of the mold to occupy almost completely the void created by reduction of the anterior surface of the prosthesis. The sprue channel is filled as before, the cylinder again filled to within 5/8 inch of the top, and the flask bolted. The spring-jack is applied, the flask set in the water bath, the rubber hoses connected to the coil, and the prosthesis recured in the manner previously described. The completed prosthesis is removed from the flask and trimmed and polished as before.

The Patient and His Prosthesis

The prosthesis is inserted in the patient's eye socket, and he is instructed in its use and care. If he has not been wearing a prosthesis habitually, he is told to remove this one at intervals — once a day, if necessary — for a month, to wash it under warm water with a soft cloth and face soap. During this first month he will learn the minimum frequency with which he must wash the prosthesis to maintain cleanliness.

Advantages of Technique

Through use of the technique described, the three goals of comfort, permanence, and esthetic adequacy have been achieved.

Comfort — 1. The individualized prosthesis is accurately adapted to the entire ocular cavity without the irritating pressure points of a stock restoration.

2. The acrylic eye has a low coefficient of thermal conduction.

3. Unlike glass, the acrylic retains a high surface polish; it is not etched and roughened in the presence of lachrymal secretions.

Permanence — 1. The acrylic itself is practically indestructible, and nonfading pigments for iris and scleral portion are available.

2. Mechanical scratches and etching by organic solvents can be removed by polishing.

Esthetics — 1. The unevenly distributed colors and shades, and the blood vessels, of the patient's remaining eye can be duplicated more accurately in the acrylic eye than in one of glass.

2. Acrylic has a more natural-looking degree of fluorescence and reflection.

(Continued on page 455)

The EDITOR'S *Page*

THE INCIDENCE of coronary artery disease among professional men is extremely high. Most of us have known physicians, lawyers, and dentists who died suddenly from acute occlusion of the coronary arteries or who have been invalided from the condition and required to retire from practice.

There has never been a clear-cut explanation given of the reason why professional workers are more likely to have coronary artery disease than are farmers, laborers, or tradesmen. In an unusually sensible article,[1] Falk of the St. Louis University, School of Medicine, approaches the subject by examining the trinity of influences in coronary disease: the pre-disposing, the precipitating, and the perpetuating. Among the pre-disposing influences an unfavorable family history is significant. Genetic patterns in disease are such that if one springs from a family strain that shows coronary artery disease, he may consider his chances of developing the condition to be greater than those of a person who has no positive family history.

Man's temperament also is a factor in his tendency to coronary artery disease. This is the profile of coronary patients as described by Falk: "They are characteristically restless, often without natural or cultivated tranquillity and poise, and seem notably lacking in the ability to relax or let up on sustained tension in their occupational or even recreational pursuits. The implications for guidance appear obvious, but correction is usually difficult and failure of accomplishment notorious."

The temperament that disposes to coronary artery disease is restless, tense, and active. These people play hard, work hard, and live hard. Relaxation, composure, and tranquillity come hard to them. Even after they are made aware of their hyperreactive personality, they find it difficult to calm down and soften their tensions.

In considering the precipitating influences that bring about an acute coronary episode, Falk emphasizes "the lethal threat of stress and strain." The vasospastic agents to avoid are: tobacco, cold, emotional stress. Falk also points out the dangers of gastric distention that result from the unwise selection of food and from overeating. His good sense is shown by this statement: "A painstaking review of the anginal subject's daily activities by the clinician is likely to prove far more useful and effective than any other regimen of drug or biologic therapy now available."

The suggestion that treatment be personalized in terms of the needs of each patient is something that most of us practicing medicine and dentistry are inclined to disdain or forget. We search so hard for specific therapeutic methods, for fool-proof techniques, for sure-fire methods, that we often lose sight of the "man within the patient." "It is astonishing," writes Falk, "what obvious and commonplace circumstances, heedlessly encountered by the average anginal subject, may be avoided or at least moderated by the cultivation of a sensible, protective attitude of living, thus helping to bridge the gap between physiologic demand and attenuated coronary supply."

All of us can profit by this kind of advice by taking stock of our own daily violations of simple physiologic laws: eating too much, smoking too much, becoming fatigued, uncontrolled and violent upheavals of our emotions, worrying, general lack of sanity and good sense in living.

For the person who has experienced coronary disease, Falk recommends the use of the anticoagulant, dicumarol. This drug is used to control the formation of intramural thrombi and to discourage the development of pulmonary embolism. The contraindications to the use of this drug are listed as follows: "The hemorrhagic blood dyscrasias, advanced hepatic disease, a history of ulcer or recent hemorrhages of the gastrointestinal tract and renal insufficiency which might prevent proper excretion of the drug." Although Falk makes no mention of vitamin K that raises the prothrombin level and increases the coagulability of the blood, it is a subject of speculation and of possible clinical interest inasmuch as the vitamin has been suggested to control hemorrhage following tooth removal. The question is: "May the use of vitamin K *increase* the tendency to clot formation within the coronary circulation?"

The vasodilators, nicotinic acid, papavarine, and alcohol, have an important place in treatment of coronary disease as well as the stand-bys, morphine and oxygen.

For all those who are disabled by coronary artery disease and seek recovery from the perpetuating influences, these words of Falk are important: "After recovery the most important phase in the restoration of a reasonable functional capacity is adaptation to a lower plane of activity, the development of a more philosophic outlook on life, and the transition to a more tranquil and quiet existence." In other words: Learn to take life easier.

[1]Falk, O. P. J.: Treatment of Coronary Artery Disease, J.A.M.A. 134:491-496 (June 7) 1947.

ESSENTIAL FEATURES of RHEUMATOI

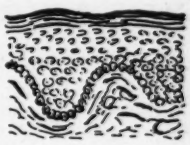
	 Geographic Distribution	 Family History	 Past History	 Age at Onset
Rheumatoid Arthritis **Atrophic Arthritis** **Proliferative Arthritis** **Chronic Infective Arthritis**	*Common in temperate climate* *Rare in tropics*	*History of Rheumatic Fever or Rheumatoid Arthritis in immediate member of family*	*Frequent history of tonsillitis or sinusitis*	*Any Age* *80% between 20-50 yrs.*
Osteoarthritis **Hypertrophic Arthritis** **Degenerative Arthritis** **Menopausal-Senile Arthritis**	*Climate no factor*	*Similar form of arthritis in one or both parents*	*Not characteristic* *Sometimes history of trauma or faulty body mechanics*	*Rare before 40 yrs*

LABORATOR

	 Agglutination Reaction with Hem. Streptococci
Rheumatoid Arthritis **Atrophic Arthritis** **Proliferative Arthritis** **Chronic Infective Arthritis**	*Positive approximately 50% typical cases*
Osteoarthritis **Hypertrophic Arthritis** **Degenerative Arthritis** **Menopausal-Senile Arthritis**	*Never definitely positive*

Adapted from MODERN MANAGEMENT IN CLINICAL MEDICINE by Frederick K. Albrecht, M

ARTHRITIS and OSTEOARTHRITIS

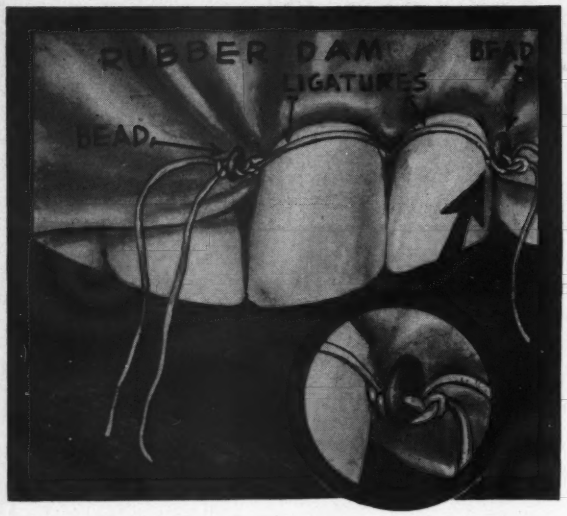
 **Mode at Onset**	 **General Condition**	 **Joint Involvement**	 **Joint Appearance**	 **Muscular Atrophy**	 **Cutaneous**
Rarely acute. Usually subacute; often accompanied by migratory pains	*Undernourished Anemic Chronically ill Slight fever Leucocytosis*	*Symmetrical and generalized. Proximal interphalangeal joints especially involved.*	*EARLY: Periarticular swelling fusiform fingers.* *LATE: Ankylosis; extreme deformity, ulnar deflection*	*Very pronounced in late stages.*	*Subcutaneous nodules in 15-20%. Extremities cold and clammy. Skin atrophic and glossy. Psoriosis.*
Insidious *No migratory pain*	*Obese; well-nourished No fever or leucocytosis*	*Weight-bearing joints: spine, hips, knees, distal joints of fingers.*	*EARLY: Slight articular enlargement.* *LATE: Slight limitation of motion; pronounced articular enlargement*	*Not characteristic*	*No characteristic features.*

DIFFERENTIATION

Sedimentation Rate 	**Roentgen Appearance** 
Usually greatly increased. *Tends to normalcy as patient improves.*	*EARLY: Osteoporosis, periarticular swelling, joint effusion.* *LATE: Narrowing of joint space, bone destruction, ankylosis and deformity*
Normal to slight increase	*EARLY: No osteoporosis; slight lipping at joint margins.* *LATE: Marked lipping; osteophytes, narrowing of joint space, deformation of bone ends.*

with the permission of The Williams & Wilkins Company, Baltimore, 1946, p. 710.

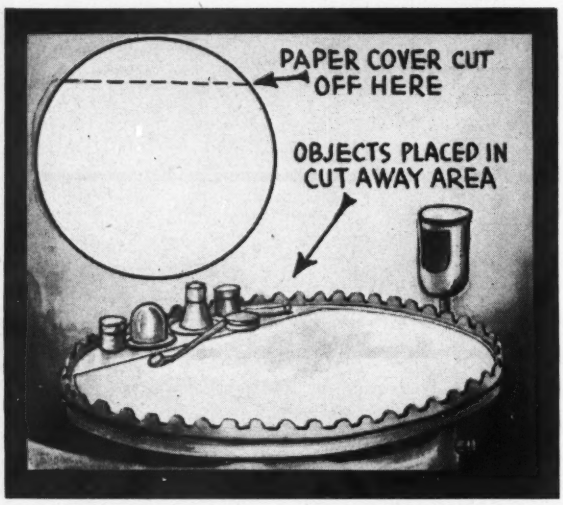
Clinical and Laboratory



Securing Rubber Dam to the Teeth

E. P. Cressler, Sr., D.D.S., Newton, Kansas

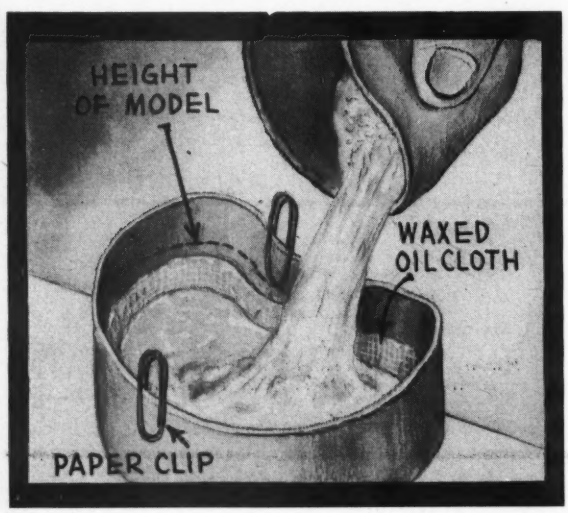
1. Punch holes in a piece of rubber dam for the number of teeth that should be exposed. Ligate the teeth in the usual manner and slip a glass or metal bead over the ligature and tie another knot. The bead will prevent the ligature from slipping.



A Convenient Operating Bracket Cover

Arnold Boston, D.D.S., North Bergen, New Jersey

2. To avoid disturbing the standard objects on the bracket each time a tray is prepared for operating, cut a number of round, paper tray covers about three inches from one side. Place an *uncut* paper cover on the bracket and on this place standard objects. A *cut-out* cover placed over the uncut paper can easily be removed after each patient without disturbing the standard objects.



A Paper Clip As an Indicator in Model Making

Louis Berman, D.D.S., New York City

3. The impression is enclosed in a strip of oil cloth that has been coated with wax. The ends of the oil cloth are held together with a paper clip. Another clip is used on the anterior aspect of the boxing material. When the desired thickness of the model has been determined, the paper clips are set in position, the lower curve of the clips corresponding to the desired height of the model. The use of these indicators avoids using too much artificial stone and assures a proper thickness of the model.

READERS *are Urged to Collect* $10.00

For every practical clinical or laboratory suggestion that is usable, DENTAL DIGEST will pay $10.00 on publication.

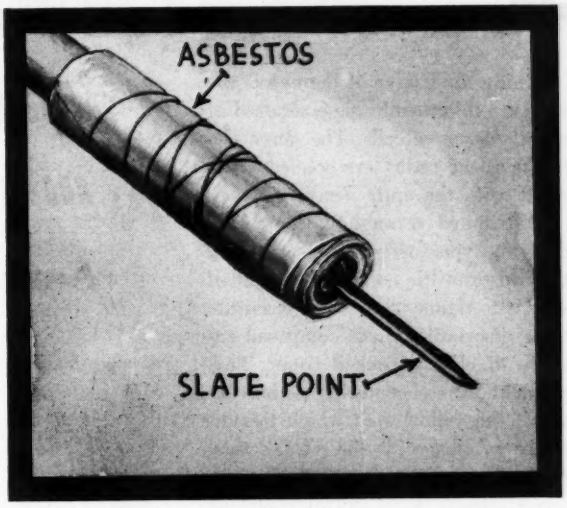
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make

UGGESTIONS . . .

A Soldering Stick

P. H. Sheridan, D.D.S., Dubuque, Iowa

4 An ordinary hard lead pencil is used. The wood is cut from the pencil to expose a long piece of the lead. The remaining wood is protected with sheet asbestos which is bound in position with fine wire. This appliance is superior to a slate pencil, in testing the fluidity of gold before casting and for use in soldering.

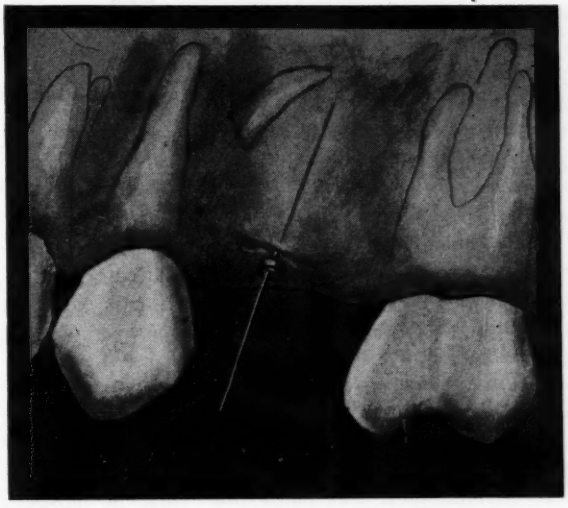


4

Locating a Retained Root Tip

G. W. Newby, D.D.S., Platteville, Wisconsin

5. After the area has been anesthetized, insert a hypodermic needle (hub or ball type) into the area. Make an x-ray exposure. The x-ray negative will show the relationship between the root fragment and the needle point. This orientation will be helpful in planning the surgical procedure necessary to remove the root tip.

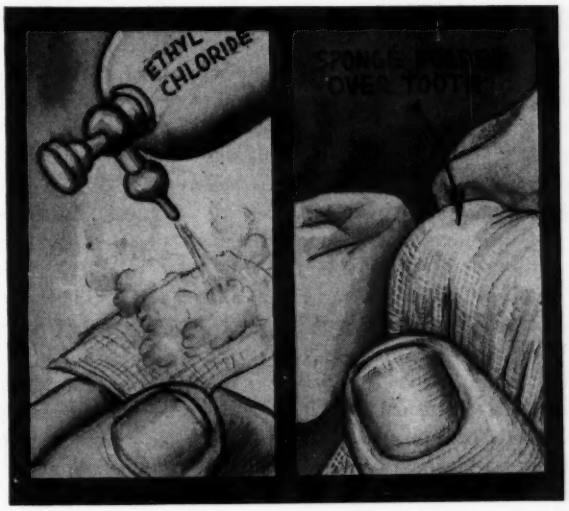


5

Extracting Loose Deciduous Teeth

J. J. Lucas, D.D.S., Hershey, Pennsylvania

6. Spray ethyl chloride on a 2 by 2 exodontia sponge. Fold the sponge over the tooth to be extracted and over the supporting labial and lingual tissues. Hold the sponge in position with the thumb and index finger for fifteen seconds. Remove the sponge and extract the tooth. To acquaint the child with the cold feel of ethyl chloride, place a sponge, on which ethyl chloride has been sprayed, on his hand. Inform him that he will experience a similar cold feeling in his mouth.



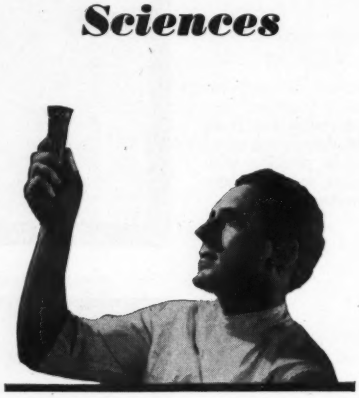
6

suitable illustrations; write a brief description of the technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time.

Turn to page 458 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

MEDICINE and the Biologic Sciences



Nightblindness

Lining the cavity of the eye is the retina, a thin membrane composed of numerous nerve cells. The nerve elements of the retina are connected directly with the optic nerve.

Distributed throughout the retina are two types of receptors of light, the rods and the cones. The point of sharpest vision and most accurate color discrimination is composed entirely of closely packed cones. This point, the fovea centralis, is the center of the yellow spot which lies directly in line with the visual axis. The yellow spot as a whole is concerned chiefly with central vision as the image is always formed directly on it.

The remainder of the retina is composed of both rods and cones. This arrangement provides for peripheral vision. The cones serve the same purpose as in the fovea but the rods are more sensitive and permit twilight and night vision.

The rods contain a substance called visual purple or rhodospin. Without this one would not be able to see in the dark. Nightblindness may be present in varying degrees depending on the factors involved in visual perception.

Only recently the connection between nightblindness and vitamin A was established. It was noted that cattle became nightblind after a severe drought. The livers of these animals showed very little vitamin whereas usually the livers stored large quantities of vitamin A. As soon as they fed on green grass the nightblindness disappeared. This was due to the fact that green grass had large quantities of vitamin A.

If the diet is deficient in vitamin A, the liver has only a limited store. The rods in the retina need a constant supply to function properly. When the eyes are exposed to a strong light at night, the visual purple is immediately bleached out. It is transformed into a passive substance termed retinene which is unable to receive an image. Only with the help of vitamin A is the retinene reconverted to visual purple.

Treatment is based on the individual case. In some persons additional vitamin A is of great value. In others the liver may be affected so that it has lost some of its ability to store vitamin A. And, too, the distribution of the rods of the retina is often imperfect.

The affliction is not too serious but may be inconvenient, especially for night driving.

Sokoloff, Boris: The Civilized Diseases, New York, Howell-Soskin, 1944, *pages* 268-270.

Kidney Function

The kidneys are indispensable for life. They function as excretory glands in the formation of urine which flows steadily from the kidneys to the bladder. About 1,500 cubic centimeters are excreted daily by a human adult.

Normally urine contains salts, urea from protein metabolism, uric acid from the metabolism of nucleo-protein, and creatinine from protein and muscle metabolism, as well as traces of a number of other materials.

Besides the waste products of normal metabolism the kidneys also excrete abnormal products of deranged metabolism such as acid bodies produced in diabetes.

Other functions of the kidneys are the regulation of the composition of the blood and the preservation of the internal environment of the conditions necessary for life. When sugar rises above a certain concentration in the blood, it is excreted by the kidneys. The urine becomes more acid or more alkaline when these substances are produced in excess quantities.

Total blood volume is controlled in part by the kidneys. Urine is copious and dilute after the ingestion of large quantities of water. And when the blood volume is low, the urine output diminishes. Such an adjustment occurs during hemorrhage in an effort to conserve the remaining water of the organism.

Carlson, A. J., and Johnson, Victor: The Machinery of the Body, Chicago, University of Chicago Press, 1947, *pages* 344-346.

Leukemia

During the past two decades much has been accomplished in bringing the disorders of the blood and the blood-forming tissues under control. Today the greatest problem in this field is leukemia.

Literally, leukemia means "white blood." However, the blood is not white but is paler than normal blood for leukemia is an overgrowth of any of the types of white cells arising in one of the three white cell-forming tissues.

Tissues which produce the white cells of the blood are: the bone marrow, the lymph gland system, and the big phagocytic cells that destroy bacteria. The normal function of the white cells is to destroy bacteria.

White cells normally number from 5,000 to 10,000 per cubic millimeter. Most of these are polymorphonuclear and arise from the bone marrow. In the presence of an infection the white count rises to 20,000 or even 40,000. This is an ordinary process and once the infection has subsided the white count returns to normal.

There seems to be no obvious stimulus for white cell production in leukemia. The growth is wild and may even reach levels of 100,000 or more. *In acute leukemia the growth is extremely rapid with the result that normal tissues are quickly flooded and destroyed.* The body becomes overrun with white cells that flood the blood, marrow of the bone, liver, lungs, and all other tissues. The bone marrow shows the effects first with a resulting extreme pallor and anemia. There is bleeding from the gums, nose, and into the skin. Infection and fever soon develop and the patient becomes progressively worse.

In the chronic forms of the disease the white cells are formed only a little faster than under normal conditions. The lymph glands and the spleen may become enlarged and there is increasing fatigue over a period of time. These patients often live quite normally for many years.

Between the acute and chronic extremes there are many intermediate forms of the disease.

There are three types of leukemia: When the bone marrow cells grow rapidly the leukemia is termed *myelogenous;* when the lymphoid system is affected the disease is termed *lymphatic; monocytic* leukemia results when the phagocytic cells grow wild. These three types of the disease manifest themselves in a variety of forms.

The initial factor in causing leukemia is still unknown. Heredity in humans plays little or no part. Bacterial and virus infections have been suspected but still they remain to be proved as initial factors. However, there is no doubt that x-rays and such radioactive substances as thorium and mesothorium can produce leukemia.

Leukemia should be suspected in cases of suddenly developing pallor and particularly if blood spots appear in the skin. A blood count will definitely verify these suspicions, if the disease is present.

For the acute case of leukemia there is practically nothing that can be done. However, much can be done for the chronic case. High voltage x-ray treatment destroys the leukemic tissues and brings the white count down to normal. The remission lasts for a variable period of time. Sooner or later these cases become refractory and then transfusions and medication for the relief of symptoms are indicated.

Recently radioactive phosphorus has been used in place of x-ray treatment. This is sodium phosphorus rendered radioactive in the cyclotron. It may be given orally or by injections with less reaction than the x-ray. However, it is difficult to obtain and the cost is often prohibitive.

From the vast amount of research being done today it is hoped that the answer to leukemia will soon be found.

Dameshek, William: Leukemia, Hygeia 24:908-909 (*December*) 1946.

Mechanism of Hemostasis (Physiology)

There are three groups of factors active in preventing or checking blood loss from the body.

Extravascular factors are those that are located or exert their activities outside the blood vessels. One of these is the location of the vessel. If a vessel runs close to the surface with little or no intervening tissue it is at a disadvantage in case of injury. Also, the degree of tension in the tissue surrounding the vessel protects it from damage and aids it in resisting the flow of blood through a damaged site.

Vascular factors are those located in the vessel wall itself. The structure of the vessel tends to arrest bleeding. The functions of retractility and contractility are important agents in this mechanism.

Intravascular factors are those within the vessel or in the blood itself. These factors are responsible for the formation of the hemostatic plug. The plug is the blocking mass formed at any point in a vessel where a deficit exists. It prevents potential loss and arrests existing flow of blood through the defective area.

Formation of the hemostatic plug is carried out in three phases. First is the platelet massing. Platelets from the blood are attracted to the damaged zone, come together, and adhere to and form a layer over the area. Next is the deposition of fibrin which forms a network to trap the blood constituents thereby arresting the blood flow. And finally, is the contraction and hardening of the platelet-fibrin plug.

In order to be effective the plug must form promptly and must meet certain physical requirements. These are adhesiveness, rigidity, and contractility. As the blood coagulates its viscosity and adhesiveness increase rapidly.

Blood with a high fibrinogen count yields a tough dense clot effective against the pressure exerted by the blood stream. Normally functioning platelets in adequate numbers strengthen the initial structure of the clot by clumping and bunching the fibrin groups together.

After a clot is formed it shrinks and expresses most of the fluid within its limits. This process probably begins immediately after the plug is formed. All the factors involved combine to help each other in arresting the flow of blood from the damaged site.

It is noted that the faster the blood clots, the more rapidly it develops the attributes of contractility, adhesiveness, and rigidity.

When blood escapes from a vessel the pressure within the vessel drops. This allows the vessel walls to come together and permits an increase in surrounding tissue tension. Thus the flow of blood is routed through adjoining vessels with a resultant decrease in blood flow to the injured vessel. If the vessel is small this may be all that is needed to control the bleeding. The contraction of the vessels may last for days but usually it is a matter of only short duration.

If the vascular changes are inadequate then the hemotogenous changes occur. The flowing of the blood offers an opportunity for the blood to come in contact with the damaged vessel walls. This seems to initiate the changes leading to the control of blood loss in the area.

Arterial blood seems to have a higher platelet count than venous blood. Perhaps the hemostatic mechanism is at a higher level in arterial blood. However, this advantage is offset because of the greater loss of blood from an artery than from a vein due to the differences in pressure and rate of flow in the two vessels.

The greater the surface in contact with a given amount of blood the faster the coagulation. And, too, the chances for adhesion are better if the clot is spread over a larger surface. This is especially true in capillaries. In the larger vessels, especially the arteries, the relationship is not so true because of the large volume of blood as compared to the small amount of tissue surface.

It is easily seen that most methods of securing hemostasis are attempts to duplicate the principal stages of the natural mechanism: (1) external compression by the use of dressings and packs; (2) contraction and retraction of the vessels by using ligatures, clamps, forceps and drugs; and (3) formation of the hemostatic plug by supporting blood transfusions or aiding the body to produce prothrombin, platelets, or other constituents that it needs.

Tocantins, L. M.: The Mechanism of Hemostasis, Ann. Surg. 125:292-310 (*March*) 1947.

Pregnancy Gingivitis

Some of the oral changes occurring during pregnancy may resemble other conditions very closely. Therefore, it is imperative that the dentist be able to recognize these changes.

In general there are five major forms of changes. This classification represents the progressive changes in pregnancy so that more than one type may be present in the same mouth at the same time. The first form is by far the most frequent. It is characterized by bleeding of the gums. There is a tendency of the gums to bleed upon slight trauma from the toothbrush, from food, or from mechanical injury. This condition may arise soon after conception and last until after parturition.

In the second recognizable form the individual papillae lose their stippled appearance and become glossy; the color changes from pink to old rose; there is a mild puffed appearance due to some edema. The papillae are blunted at the tips. Usually, if present, these changes occur early and disappear after parturition without treatment.

Generally, only the free margin of the gum is involved in the third form. The gums take on the color and appearance of a raspberry; they are highly inflamed and bleed easily. The anterior gums are most frequently affected.

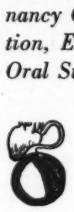
A generalized hypertrophy of the tissues characterizes the fourth form. It is termed a hypertrophic gingivitis of pregnancy. The tissues are affected in varying degrees. There may be excessive enlargement of the tissues and varying color changes from an old rose to a bright red if irritation is present. Because of the excessive hypertrophy hygiene is difficult and additional proliferation may result from food impaction, calculus, and lack of function. These gums bleed easily but seldom are painful.

The pregnancy tumor is characteristic of the fifth form. This is a single growth appearing at any one point in the mouth. Usually it attains considerable size varying from one to two centimeters in diameter or larger. There is generally a pedunculated attachment and the color is cyanotic with a bright red border. It differs from the epulis in that it may either disappear entirely or diminish greatly in size after parturition. Caution should be exercised to distinguish the pregnancy tumor from an epulis.

The changes occurring in the oral mucous membrane during pregnancy are not specific but occur also on epithelial surfaces elsewhere in the body. Similar changes are noted in the vagina and in the nasal mucous membranes.

There seems to be no single etiologic factor responsible for tissue changes. But rather they are a result of altered nutritional and metabolic status of the individual during pregnancy. Probably the most prominent cause of the gingival changes is a lack of utilization of estrogen or a modification of endogenous estrogen.

Ziskin, D. E., and Neese, G. J.: Pregnancy Gingivitis: History, Classification, Etiology, Am. J. Orthodont. & Oral Surg. 32:390-432 (*June*) 1946.



Arteriosclerosis in Youths

There is an increasing number of reports of arteriosclerosis in infants and young adults. These reports furnish the evidence that the disease is not the consequence of senescence only. It appears as a result of various endogenous and exogenous factors acting on the blood and the vascular tissues.

In the majority of instances the first and generally fatal attack is not preceded by any warning symptoms pointing to the presence of coronary sclerosis. Coronary sclerosis in young persons is definitely more common than is usually assumed. And the incidence of the disease is on the increase in these younger age groups.

There is little information available concerning the etiology of juvenile coronary sclerosis. Obesity has been suspected but it is not present in enough instances to be considered a positive etiologic factor. It is noted that in some cases there is a disturbance in the fat metabolism that predisposes to the disease.

There is some evidence that infections of the throat and respiratory organs as well as rheumatic and scarlet fever are responsible in some degree. These infections seem to produce a toxic or allergic mechanism favorable to the disease.

Histologic changes observed in

sclerotic coronary arteries in youths are identical with those changes seen in persons of more advanced age. Often the early developmental stage of coronary sclerosis is associated with an inhibition of the vascular wall by a fat-free edematous fluid, fibrinoid swelling, and active vascularization of all layers of the walls of the vascular tissues.

Because of the seriousness of juvenile arteriosclerosis the prevention as well as the therapeutic treatment of the disease is one of the most urgent problems of medicine today.

Hueper, W. C.: Arteriosclerosis: A General Review, Arch. Path. 39:54-59 (*January*) 1945.

The Plastic Ocular Prosthesis

(*Continued from page* 446)

3. Since the restoration is removable, two prostheses, one for daytime and one (with larger pupil) for nighttime use, can be provided.

4. The principal esthetic gain, however, has been in mobility. Because of the complete and positive contact of the individually fitted prosthesis, there is a lifelike spontaneity and range of movement impossible for stock restorations.

Comments

Research at the U. S. Naval Dental School for improvements in the procedure, and comparison with and testing of other techniques is continuous. One of the present objectives, for example, is reduction in the number of patient visits required without sacrificing accuracy of iris orientation or of the natural appearance of palpebrae and surrounding tissues.

On the basis of several hundred eyes made at the Naval Dental School and in view of the growing nonmilitary demand for an adequate prosthesis, it seems to the author to be increasingly important that there be a more active exchange between all those who are working for its improvement and that more graduate dental schools teach and conduct research in the field of plastic ocular restorations.

Naval Dental School.

Penicillin Lozenges in the Treatment of Vincent's Stomatitis

L. W. STRONG, Jr., Lieutenant (DC) USNR and E. W. WILLETT, Captain (DC) USN

VINCENT'S STOMATITIS, or Vincent's infection involving the oral tissues, is one of the most stubborn and complex diseases of the mouth. If there are no pockets, crevices, or hiding places for bacteria in the mouth, drugs will destroy all bacteria, and the mouth will be free of disease in a short time. If, on the other hand, the mouth has periodontal pockets, partly erupted third molars, the gingival flaps of which are perfect harbors for bacteria, cavities in the teeth, or overhanging restorations, a slow mechanical and surgical process is required in addition to the use of drugs.

The method of treating this disease for the past few years has been a combination of:

1. Applying drugs to the tissues by swabbing, spraying, and the use of mouthwashes.

2. High vitamin diets, with emphasis on those foods containing vitamin C.

3. No use of the toothbrush, which tends to irritate tissue and thus spread the infection.

4. The elimination of all periodontal pockets, calculus, gingival flaps, overhanging restorations, cavities, and open contacts which collect food particles.

Some of the drugs used are hydrogen peroxide, sodium perborate, neoarsphenamine, chromic acid, copper sulfate, and the sulfonamides. They all seem to be effective and have their place therapeutically. Despite these various methods of therapy, however, the treatment of Vincent's infection has often been long, tedious, and sometimes ineffective.

Use of Lozenges

Lozenges containing 750 units of pure penicillin sodium are used.

Method of Treatment—1. Spray

CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 450 *and* 451)

Form to be Used by Contributors

To: Clinical and Laboratory Suggestions Editor
DENTAL DIGEST
708 Church Street
Evanston, Illinois

From: _____

_____

Subject: _____

Explanation of Procedure:

Sketch:

$10 will be paid to author on publication of accepted suggestions.

the mouth with penicillin solution, 250 units per cubic centimeter.

2. Give the patient 15 or 20 lozenges with instructions to place one between the cheek and gum and allow it to dissolve in the saliva. (It takes an hour or more for the lozenge to dissolve.)

3. Instruct the patient to replace dissolved lozenges immediately.

4. Tell him to place a lozenge in the mouth immediately before retiring and to chew it so as to break it up before going to sleep. (This will load the saliva with active penicillin and still prevent possible aspiration of the lozenge during sleep.)

5. Tell the patient to place another lozenge in his mouth and to chew it, if he awakens at night. (The flow of saliva is slower during sleep; therefore, the penicillin-saturated saliva will remain in the mouth for some time.)

6. Give the patient more lozenges the next day and spray his mouth with the penicillin solution to cleanse surface debris.

7. Instruct him not to brush either the teeth or gums.

Results of Treatment—In a group of over 400 cases of Vincent's infection treated with lozenges of this potency, every patient showed complete recovery. The actual length of time before smears were negative varied from 48 and 120 hours according to the severity of the case and the amount of tissue involved. Within twenty-four hours patients were remarkably relieved from pain and discomfort and could actually resume the mastication of food; the foul odor of the breath, so typical of the disease, disappeared along with the necrosed and sloughed tissue; and in some cases heavy deposits of salivary calculus started to flake off the teeth.

After forty-eight hours, most patients reported that the mouth felt normal. This is a much more rapid clinical result than is usually obtained by other methods of therapy.

Forty-five cases were treated with the lozenges without any scaling or mechanical treatment except the penicillin spray and became clinically negative in from two to five days;

the remaining patients had light scaling in conjunction with the lozenges and spray. The removal of heavy calculus deposits naturally has a beneficial effect and will hasten the patient's recovery; but the infection can be controlled without this treatment.

Comments

No treatment, of course, should be attempted in the mouth during an acute Vincent's infection, which will irritate tissue or expose open bone or tissue to the saliva. Only emergency surgery should be attempted under such conditions.

That the penicillin lozenges seem to be so effective in controlling the disease would seem to indicate their routine use in all but very healthy mouths, when surgery is attempted.

After the acute infection has been controlled, all procedures should be taken to remove breeding spots of bacteria. Vincent's organisms can usually be found in every periodontal pocket or in other crevices in the mouth and most mouths presenting Vincent's infection have local pockets of infection, periocoronitis, or defects of the teeth or of the restorations present. It should be remembered, however, that even though the bacteria are destroyed, the foci or breeding places in the mouth must be thoroughly eliminated to prevent an early recurrence.

Conclusions

1. The use of penicillin lozenges seems to be the most effective method of destroying Vincent's spirillum and fusiform bacillus in the mouth.

2. It is a simple and effective way to control cases of Vincent's infection not severe enough to warrant injection of the drug.

3. Most cases require only from 30,000 to 50,000 units of penicillin.

From *United States Naval Medical Bulletin* 46:353-356 (March) 1946.

In your ORAL HYGIENE this month

Doctor Peetz has a plan

Back in 1929, Doctor Peetz' new practice was not thriving . . . Something had to be done—and he did it. Now he has an almost "depression-proof" method of managing his practice and assuring himself a steady yearly income. So that other dentists may use the same plan that has worked so successfully for him for eighteen years, Doctor Peetz has given Oral Hygiene permission to explain it in detail. George G. Fritz wrote the article for the September issue.

★ ★ ★

Many a dentist has received a Carnegie Hero Fund award for courageous effort to save a life. Henry F. Unger tells thrilling tales of some of these men in "Dentist Heroes."

★ ★ ★

"I've Gone to the Country to Practice"—Doctor Philip Nemoff is the author of this helpful discussion of the advantages of a country practice. If you have been longing to leave the rush and discomfort of city practice but are hesitant about making the change, read this article.

★ ★ ★

"Partnerships in Practice" — Do you know when a partnership is *not* a partnership? Do you know the obligations of partners? An attorney, Renzo Dee Bowers, LL.B., gives useful information.

Is your office crowded? Doctor E. Auber Peebles tells how he converted a small space (350 square feet) into the equivalent of seven attractive rooms. Don't say "It can't be done," until you have read his explanation of the use of mirrors and accordion-like sliding doors. Best of all, he says, "In these days of high rentals, this office plan has reduced my rental expense 45%—which is further proof that good planning reduces overhead."

★ ★ ★

Do you "Practice the Way You Preach"?—Doctor Bernard J. Garn discusses three major points on which practice often diverges from theory—to the patient's and dentist's detriment. "Misconceptions . . . have been started by dentists, they are perpetuated by dentists, and—if the profession is to flourish—they must be corrected by dentists."

★ ★ ★

Guard your hands! Doctor Lester Hollander, Medical Director, Pittsburgh Skin and Cancer Foundation, cautions dentists against carelessness in hand care. (Even soap and water occasionally cause chemical dermatitis.) In his article, "Care of the Dentist's Hands," he discusses the diagnosis and treatment of skin conditions likely to result from dental practice.

Contra-Angles

One Man's View of Dental Politics

Boston, the city that has been the center of many struggles for American independence, was again the setting of political unrest during the recent meeting of the American Dental Association. In a closely contested election, Clyde E. Minges of North Carolina was chosen as President-elect. The terms of office of five trustees expired. Only one position among them was filled without contest. In the other four trustee districts it was necessary for the House of Delegates to elect the trustee.

The four contested positions produced an appalling picture of log-rolling, name-calling, and ill will. Without exception *all* the candidates for these positions are honorable and valuable members of the profession who have made generous contributions to professional advancement. Should one, however, be thrown into the arena of political debate as practiced in Boston without previous knowledge of the candidates, one would be certain that among them were communists, knaves, and rogues.

It isn't a happy situation to see and hear some members of the House of Delegates of the American Dental Association engaged in slander and the spreading of vicious innuendoes. It is unpleasant to see the gatherings and connivings of delegates in the smoke-filled rooms; to hear the vicious and petty stories spread about. Wounds were opened in Boston that will be a long time in the healing. Men who have worked together for years for the advancement of American dentistry found themselves in different political alinements at Boston. Some of these were extremely embarrassing. Men who thought that they understood each other and were friendly with each other found that their friendships were frail and tenuous when politics entered the deliberations. Both the victors and the defeated candidates suffered from the same deflections in human relationships. Neither the victors nor the vanquished can be proud of the political methods used in Boston.

To contest for any position is wholesome and part of the tradition of free enterprise in a free society. Every member of any organization is entitled to run for any office. The majority and minority parties, the "ins" and the "outs," the system of checks and balances, are parts of the democratic process. No one can object to these principles. When, however, the method of opposition to a candidate begins to be colored with the worst forms of political chicanery, it is time to draw up short and ask ourselves if

an organization of professional men in the health field should not conduct itself on a plane higher than do the ward bosses in the large cities. Should character assassination, deceit, and hypocrisy among some of the official delegates be encouraged in an organization that is created and is intended to do good for society?

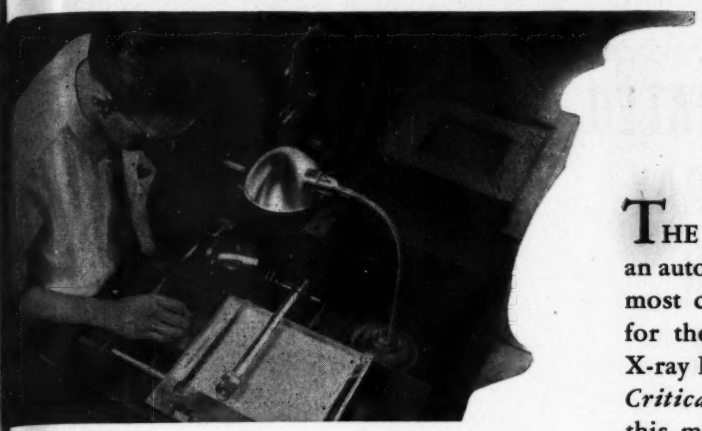
The activities of the American Dental Association in creating wide public acceptance and respect for dental services, in improving the standards of dental education, in encouraging research, in promoting relief programs for needy members, in opposing quackery in the profession and fighting nostrum venders outside the profession should fill every dentist with pride. Every year the internal organization of the Association is improved and the activities are conducted more efficiently. The superb organization and the smooth func-

tioning of the scientific sessions and of the meetings of the House of Delegates in Boston were in bright contrast to the political sniping that was engaged in to place men in the various elective offices. Great credit should be given to Sterling V. Mead for his judiciousness as a presiding officer and equal credit should go to Harold Hillenbrand, General Secretary, John J. Hollister, Business Manager, and Philip E. Adams, Local Chairman, for their careful and accurate planning and for their precise execution of their plans.

It is disquieting to hear men called "reds," "leftists," "communists," and to have their racial and religious origins questioned and assailed. All these devices were used in Boston—and more. It is disturbing when one knows that the names and scurrilous epithets are untrue and unfounded—and that the people who used them *knew* they were untrue.

There is excitement in a political campaign and a challenge in plotting and planning political strategy. This is not to be deplored. When the desire to win an election stimulates enthusiasms to a point where good taste and good judgment are lost, it is time to sound an alarm. The regrettable fact is that the personal injuries suffered were among the men who will be required to work together again in the state and the local societies.

Dental societies are made up of men who work hard at committee assignments or in offices without salary or profit. These men who are in organization positions have accepted



Quality control here...

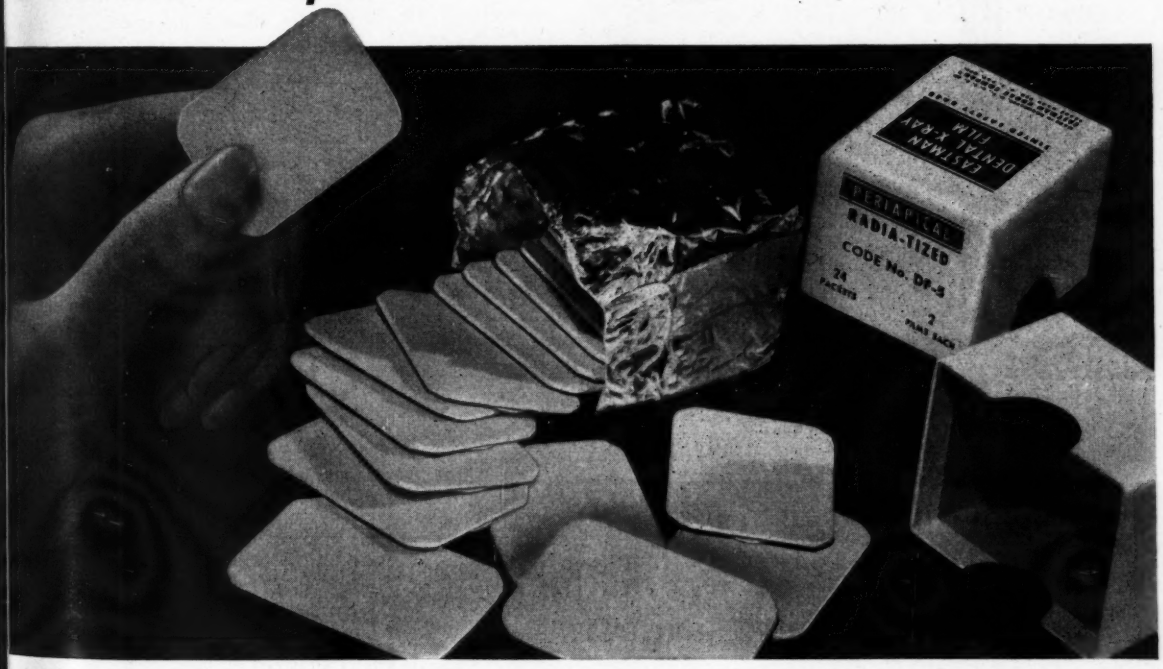
means complete dependability of Kodak Dental X-ray Film

THE photograph at the left shows an automatic densitometer—one of the most critical and precise instruments for the inspection of Kodak Dental X-ray Film. . . .

Critical—because test sampling by this method determines the range of densities obtained by varying exposures of film that Kodak makes.

Precise—because it involves controls of extreme delicacy and accuracy.

From these tests Kodak can predict the behavior of each film under all practical exposure conditions. And only film that meets Kodak's highest standards reaches the user. That is why Kodak Dental X-ray Film is always uniform . . . always dependable.



KODAK X-RAY PRODUCTS FOR DENTISTS

Films . . . Film Chest, Dispenser, Receptacle . . . Intensifying Screens . . . Exposure Holders . . . Processing Chemicals . . . Processing Tanks . . . Processing Hangers . . . Timers . . . Thermometer . . . Mounts . . . Illuminator . . . Film Corner Cutter.

EASTMAN KODAK COMPANY
X-ray Division
Rochester 4, N. Y.

Kodak

the philosophy of professionalism that teaches that every man owes a debt to his profession and must try to repay that debt within the limits of his capacities and capabilities. Most of the workers in dental societies labor for love and usually at a great sacrifice in time, energy, and money. In working closely with other men who have dedicated their talents to the same objectives, close and lasting friendships develop. No one has *not* been enriched who has worked unselfishly with other men. All of us have acquired warm and dear friends in dental society associations. Naturally, we have also had differences of opinion. This is good and wholesome, provided we do not confuse the issues. Friendship does not mean complete and total agreement in all things. It does, however, involve respect and good will. Many of the disputants in the politics in Boston lost respect and good will and with these losses went friendships of long standing; that is regrettable. This one observer's opinion is that this price of office it too great.

The House of Delegates of the American Dental Association meets but once a year and is never composed of the same personnel year after year. When the House of Delegates votes for a man as trustee, it is often voting without even a clear knowledge of the candidate. For example, a delegate from a far western state cannot vote with any intelligence or intimate knowledge of a candidate from an eastern district. When, therefore, an election for a trustee is thrown into the House of Delegates because of a contest in the district, the election is often won through the votes of people who have no direct information about or acquaintance with the candidate. This system is as unwise as one that would permit a citizen of California to vote for the governor of New York or a resident of New Orleans to vote for the mayor of Baltimore.

Trustees should be elected by the *direct* vote of their constituents. Members of the House of Delegates, state and local society officers should be chosen by the same system. Any method of delegation of suffrage is a

It ain't the 'eavy 'auling
That 'urts the 'orses 'oofs.
It's the 'ammer, 'ammer, 'ammer
On the 'ard 'ighway.

For long service . . . avoid the *shock of impact*

To insure satisfactory service from a bridge — and *particularly* an anterior bridge constructed with porcelain incisals — the articulation should always be carefully checked and the bite balanced before the patient is dismissed.

This is especially true since it has become more or less common to construct bridges from a partial impression and with only a "snap" bite. Bridges so constructed will be in articulation only by accident. Full mouth models are essential if the technician is to correctly articulate a bridge case — on an articulator capable of duplicating *all* motions of the jaw. Otherwise it becomes necessary for the *dentist* to articulate the bridge. In either case one should always be sure, before dismissing the patient, that no motion of the jaw can concentrate its full force on an anterior bridge tooth during the process of mastication.

Steele's P.B.E. (porcelain biting edge) interchangeable facings are being increasingly used; and when the shock of impact on a single tooth is avoided, bridges made with P.B.E. facings are completely serviceable — as well as *the last word esthetically.*

THE COLUMBUS DENTAL MANUFACTURING CO.
COLUMBUS 6, OHIO

Steele's P.B.E. PORCELAIN BITING EDGE
INTERCHANGEABLE NEW HUE FACINGS

bad system. Formerly, United States Senators were elected by the state legislatures. This method was changed by popular demand because people wanted the privilege of choosing their representatives in Congress directly and not by any secondhand method.

There is no reason why *all* dental society representatives, local and state officers, members of the House of Delegates, and the Board of Trustees, cannot be elected by popular and direct vote. There is no reason why such elections cannot be conducted *by mail* which would give every dues-paying member a chance to express his preference. Candidates for office would be required to present petitions signed by a suitable number of society members in good standing. After the petitions were filed, names would be placed on ballots and the ballots sent by mail to every member. The marked ballots would be returned by mail to a central office where they would be held unopened until judges of the election met to count the ballots.

This method of voting would be direct, simple, and democratic. It should prevent much of the rancor that developed at Boston and that will, unfortunately, be alive for a long time. We, as a profession, have too much important work to be done to risk bitter fighting among ourselves. Who was it that said: "Divide and conquer!" Might it be that the enemies of the present system of dental practice and organization would like to see our house divided?—E.J.R.

Some Basic Research Needs in Nutrition

P. C. JEANS, M.D., Iowa City, Ia.

ONE OF the most controversial subjects of interest to the pediatrician is dental caries. Until some general agreement as to cause can be reached, research must continue.

It is my own concept that the factors protective against dental caries are numerous and interrelated. In almost none of the recorded experiments have the subjects and the diets been closely controlled to the extent that only one variable was operating.

1. I believe that the best type of experiment is one in which the subjects receive a fully adequate diet with the exception of the single factor being studied.

2. Each subject should be supervised at each meal and between meals in order to assure that the prescribed diet is ingested.

3. While the subjects must be completely regimented, it is necessary at the same time to supply facilities for meeting the normal physical, educational, emotional, social, and recreational needs of life. The conditions must be such that the lives of the children will be none the worse because of their employment for study.

A good reason why this type of

controlled study has not been carried out on a large scale is that it is difficult and expensive; yet, it should be done. Investigators have carried out this type of procedure on a small scale, but on such a scale the results are too slowly accumulated. Orphanages are commonly used for studies of groups of children. These institutions are inadequate because of the lack of cooperation by the administrative personnel and the difficulty of complete regimentation without such cooperation.

From *Journal of the American Medical Association* 133:245 (January) 1947.

Gastritis in the Toothless

REVIEWING the histories of 3,684 patients with gastrointestinal disturb-

ances, Rodriguez-Olleros[1] found 168 who had extensive deficiencies of dentures which made proper mastication impossible. Nearly half of these patients, or 48.8 per cent, had primary gastritis, whereas of the remaining 3,516 patients with efficient mastication, only 6.1 per cent had gastritis.

The author believes that the part played by mechanical irritation of the stomach, produced by deficient mastication, is more important in the genesis of gastritis than the medical literature of today suggests.

From Current Medical Literature, *Journal of the American Medical Association* 134:833 (June 28) 1947.

Cancer of Tongue

SHARP AND Spickerman[1] present a flexible plan for the eradication of the primary lesion as well as of metastatic cervical involvement in cancer of the tongue.

The incidence of lingual carcinoma can be drastically reduced by early recognition and treatment of precancerous lesions. The relation between the site of the primary lesion, the etiology, and the degree of malignancy is pointed out. Definite diagnosis of the character of a lesion is possible only on the basis of biopsy and pathologic examination. No ill effects from biopsy were observed in this series.

Treatment of Primary Lesion

Through medication with penicillin and the sulfonamide drugs, infection of the primary lesion and resultant dissemination of cancerous cells have largely been eliminated. The primary lesion is treated exclusively by irradiation, roentgen therapy being combined with subsequent implantation of radium needles. By using a short target-skin distance, the daily dose has been increased while the total dose has been considerably lowered; thus, the course of roentgen treatments has been reduced to ten or twelve days. For interstitial radium therapy platinum needles have been employed almost exclusively.

Metastatic Cervical Nodes

In the treatment of metastatic cervical nodes, preoperative roentgen therapy is combined with subsequent radical neck dissection. When surgery is contraindicated, administration of a larger dose of x-rays is immediately followed by implantation of radium needles.

Results of Treatment

An unselected, consecutive series of 81 cases is reviewed. The described course of treatments led to five-year cures in 31.3 per cent of all cases.

From Current Medical Literature, *Journal of the American Medical Association* 134:637-638 (June 14) 1947.

[1]Rodriguez-Olleros, A.: Gastritis in the Toothless, Rev. Gastroenterol. 14:180 (March) 1947.

[1]Sharp, G. S., and Spickerman, H. D.: Cancer of Tongue, Am. J. Roentgenol. 57:181 (February) 1947